Feb. 26, 1946. C. S. REED 2,395,761

CONVEYER SLAT ASSEMBLY

Filed Feb. 17, 1944 2 Sheets-Sheet 1

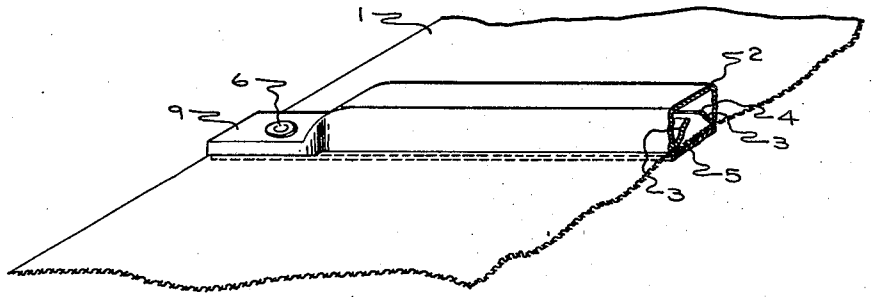


Fig. 1

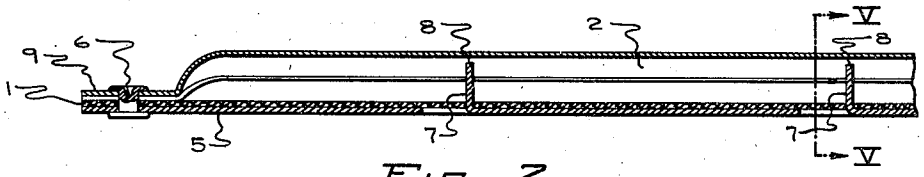


Fig. 2

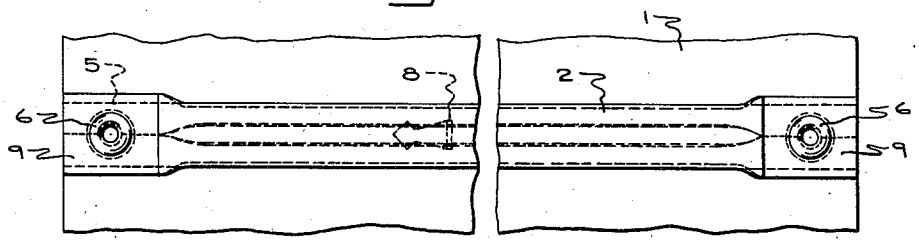


Fig. 3

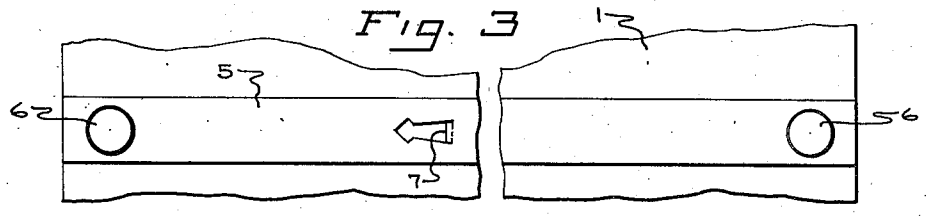


Fig 4

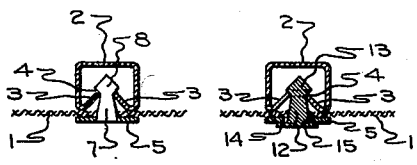


Fig. 5 Fig. 6

Inventor

CLAIR S. REED

By Beaman & Langmd

Attorneys

Feb. 26, 1946. C. S. REED 2,395,761

CONVEYER SLAT ASSEMBLY

Filed Feb. 17, 1944 2 Sheets-Sheet 2

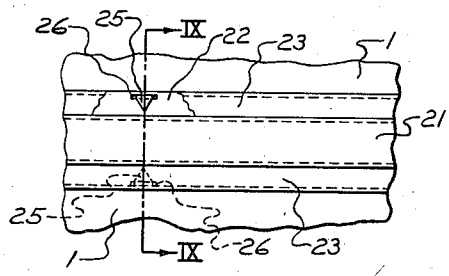


Fig. 8

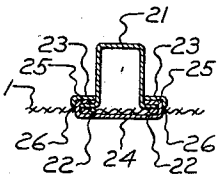


Fig. 9

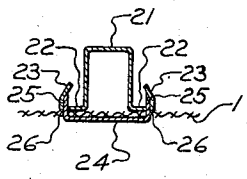


Fig. 10

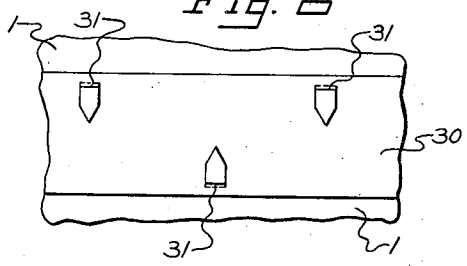


Fig. 11

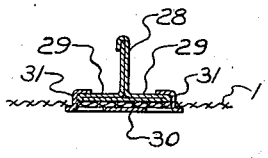


Fig. 12

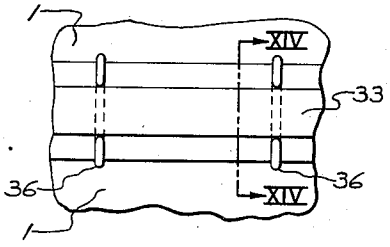


Fig. 13

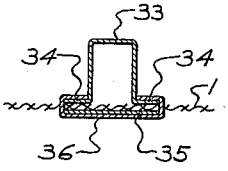


Fig. 14

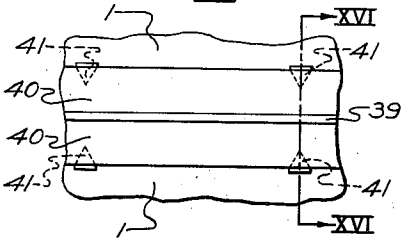


Fig. 15

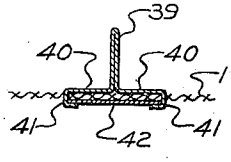


Fig. 16

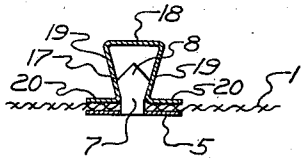


Fig. 7

Inventor

CLAIR S. REED

By Beaman & Langford

Attorneys

Patented Feb. 26, 1946

2,395,761

UNITED STATES PATENT OFFICE

2,395,761

CONVEYER SLAT ASSEMBLY

Clair S. Reed, Jackson, Mich., assignor to Reynolds Spring Company, Jackson, Mich., a corporation of Delaware

Refiled for abandoned application Serial No. 335,433, May 16, 1940. This application February 17, 1944, Serial No. 522,822

5 Claims. (Cl. 198—199)

The present application is a refile of my abandoned application, Serial No. 335,433, filed May 16, 1940, and relates to conveyer slats and more particularly to conveyer slats mounted so as to prevent foreign material from working between the slats and the flexible belts on which they are mounted.

Conveyer slats are conventionally secured to the flexible belts on which they are mounted by rivets or staples of some character, projecting through the belts and into the central bottom portions of the slats. The disadvantage attending this character of construction is that when the belts pass over rollers, the curvature of the rollers, causes the belts to pull away from the slats adjacent the edges thereof, with the result that foreign materials, such as straw and the like, for instance, when the belts are used in threshing machines, works into the space between the belts and the slats and eventually tends to separate the belts from the slats. According to the present invention foreign material is prevented from entering between the belts and the slats by plates coextensive in length and width with the slats clamping the belts to the slats. Another feature of the invention is the means for securing the belts to the slats, which consists of pins having heads thereon lanced from the clamping strips and projecting into restricted throats integrally formed in the slats.

An object of the present invention is to provide a strip substantially coextensive in length and width with a conveyer slat to clamp the flexible belt on which the slat is mounted to the slat.

Another object of the invention is to secure a slat to a flexible belt by means of a plate substantially coextensive in width and length with the slat, and headed fastening members projecting into resiliently restricted throats in the slats.

Still another object of the invention is to secure a conveyer slat to a flexible belt by means of a plurality of headed pins lanced from a plate, substantially coextensive in length and width with the slat, the heads of the pins being retained within the slat by locking means.

These and other objects will be apparent from the following specification when taken with the accompanying drawings, in which:

Fig. 1 is a perspective view showing a portion of a conveyer belt having a conveyer slat secured thereto, according to the present invention,

Fig. 2 is a transverse section through a conveyer belt and a portion of a slat secured thereto, according to the present invention,

Fig. 3 is a plan view of a flexible conveyer belt having a conveyer slat attached thereto according to the present invention,

Fig. 4 is a bottom plan view of the construction disclosed in Fig. 3,

Fig. 5 is a section on the line V—V of Fig. 2,

Fig. 6 is a vertical section showing another form of attaching structure,

Fig. 7 is a section corresponding to Fig. 5, disclosing the invention as applied to another form of conveyer slat,

Fig. 8 is a plan view of a portion of a conveyer slat and belt disclosing another form of the invention,

Fig. 9 is a section on the line IX—IX of Fig. 8,

Fig. 10 is a section corresponding to Fig. 9, but showing the parts of the invention disclosed in Figs. 8 and 9 in one of the positions the parts take during the assembling thereof,

Fig. 11 is a plan view of another form of slat securing strip shown prior to being assembled with a belt and slat,

Fig. 12 is a vertical section through a slat secured to a belt by the strip of Fig. 11,

Fig. 13 is a plan view of a conveyer slat and a belt disclosing another method of attaching the slat to the belt,

Fig. 14 is a section on the line XIV—XIV of Fig. 13,

Fig. 15 is a plan view corresponding to Fig. 13 disclosing still another form of the invention, and

Fig. 16 is a section on the line XVI—XVI of Fig. 15.

Referring particularly to the drawings, the reference character 1 indicates a flexible conveyer belt usually of canvas to which is connected a plurality of spaced conveyer slats 2, one of which is shown. The slats 2 are for the purpose of preventing the longitudinal slipping of material carried by the conveyer belt. The conveyer slat 2 is generally similar to the conveyer slat disclosed in Patent No. 2,211,648 granted August 13, 1940 to Otis C. Currie. While the slats 2 and the slat disclosed in said patent are similar in that they are both made of tubular sheet metal, the slat 2 is not provided with a filler, but is hollow. The slat 2 is formed preferably by rolling from a flat strip. The edge portions 3 of the strip in their final position in the slat 2 are inwardly inclined to provide a throat 4.

The lower side of the slat 2, which is the side on which the throat 4 opens, is disposed on the belt 1 and is held thereagainst by a strip 5, preferably of metal, which is substantially coex-

tensive in length and width with the slat 2. The strip 5 is secured to the slat 2, with the belt 1 between it and the slat 2, by rivets 6 at each end thereof, and also by pins 7 provided with heads 8 which in assembled relation with the slat 2 are disposed within the throat 4, shown particularly in Figs. 2 and 5. The pins 7 are integral with the strip 5, being lanced out therefrom. It will be appreciated that the edge portions 3, being of sheet metal, of the slat 2 are somewhat resilient so that in assembling the strip 5, the belt 1 and the slat 2, the edge portions 3 yield to permit the passage of the heads 8, but close behind the heads 8 to prevent their return movement.

The purpose of the strip 5 is to clamp the belt 1 against the slat 2 to prevent the entrance of foreign material, such as straw or the like, between the slat 2 and the belt 1. Accordingly, the width of the strip 5 should be substantially coextensive with that of the slat 2. As shown particularly in Figs. 1 and 3, the flattened ends 9 of the slat 2, through which the rivets 6 project, are slightly wider than the intermediate portions of the slat 2. The strip 5, as shown in the drawings, having a width equal to the width of the intermediate portion of the slat 2, therefore slightly underlaps the end portions 9 as shown in Fig. 3. It will be understood, however, that while strips 5 of uniform width are the most economical to fabricate, the strips 5 may be shaped to be exactly coextensive in width with the slats 2. Furthermore, it will be understood that even when the strip 5 slightly underlaps the slat 2, as at the end portions 9, the thickness of the belt 1 over the edges of the strip 5, as the belt 1 is passing over a roller, will prevent the opening of a space between the belt 1 and the slat into which foreign particles could work.

It will be appreciated that there may be other ways in which to secure the strip 5 to the slat 2, and one example of such another way is disclosed in Fig. 6 showing a vertical section through a slat wherein the pins 7 are replaced by fastening pins 12 provided with heads 13 and base portions 14. In this form of the invention the strip 5, instead of being provided with the struckout pins 7, is provided with a plurality of openings 15 through each of which a fastening pin 12 is projected. In this form of the invention the heads 13, like the heads 8, disclosed in the first form of the invention, are retained within the throat 4 by the edge portions 3.

Fig. 7 discloses another form of the invention wherein the strip 5 is the same as that shown in Figs. 1 through 4, and is provided with the same lanced out pins 7 having heads 8. The pins 7 project into a restricted throat 17 formed in a slat 18, having downwardly converging side walls 19 to form the throat 17. Projecting laterally parallel to the belt 1 are stabilizing flanges 20 integral with the side walls 19.

Still another form of the invention is disclosed in Figs. 8, 9 and 10, wherein there is mounted on the belt 1 a slat 21 formed of rolled sheet metal. The slat 21 is provided with laterally extending stabilizing flanges 22 bearing against the belt 1, the stabilizing flanges 22 having overlapping flanges 23. A strip 24 for clamping the belt 1 against the slat 21 is provided at each side thereof with a plurality of tabs 25, which project up from the edges of the strip 24 through the belt 1 and through openings 26 in the flanges 22. The slat 21 before attachment to the belt 1 is provided in the form disclosed in Fig. 10, wherein the flanges 23 are inclined at an angle to the flanges 22. After the tabs 25 of the strip 24 are projected upwardly through the openings 26 in the flanges 22, the flanges 23 are folded down, preferably by hammering or some similar operation, into parallel relation with the flanges 22 into the position shown in Fig. 9. During this operation; the tabs 25 are folded between the flanges 22 and 23 and thus hold strips 24 against the belt 1 and the belt 1 against the slat 21 in clamping relation.

Figs. 11 and 12 illustrate another form of the invention wherein a slat 28 is formed from sheet metal rolled into a form of T cross section. It will be understood, however, that the slat 28 may have any form desired in the form of the invention disclosed in Figs. 11 and 12 so long as it is provided with the equivalent of stabilizing flanges 29. A strip 30 for clamping the belt 1 against the slat 28 is provided with a plurality of struck-up tabs 31, shown in Fig. 11, before being disposed in assembled relation with the belt 1 and the slat 28. In order to assemble the slat 28, the belt 1 and the strip 30, the tabs 31 are projected through the belt 1 on opposite sides of the flanges 29 and are folded or bent over the flanges 29, as shown in Fig. 12, to secure the parts together in clamping relation.

Figs. 13 and 14 disclose still another form of the invention, wherein the slat 33 of rolled sheet metal, provided with stabilizing flanges 34 in parallel relation with the belt 1, is clamped to the belt 1 by a strip 35, by the action of a plurality of longitudinally spaced staples 36 beneath the strip 35 and having the end portions thereof bent over the stabilizing flanges 34, as shown in Fig. 14.

In the form of the invention disclosed in Figs. 15 and 16, a slat 39 is provided with stabilizing flanges 40 along the edges of which are a plurality of spaced tabs 41. The slat 39 is assembled on the belt 1 by projecting the tabs 41 through the belt 1 and bending them over beneath a strip 42 on the opposite side of the belt 1 from the slat 33, as shown particularly in Fig. 16.

It is to be appreciated that in all of the forms of the invention hereinabove described, the strip for clamping the belt 1 against the slat is substantially coextensive in length and width with the slat, including the stabilizing flanges thereon, if any. Furthermore, it will be realized that the invention may take other forms, not specifically shown. Accordingly, I do not wish to be limited except by the scope of the following claims.

I claim:

1. In a device of the character described, a conveyer slat for attachment to a flexible belt, comprising a substantially closed sheet metal member, said member having along its open side spaced opposed edge portions, said edge portions being inwardly inclined to provide a converging throat, and a plurality of fastening means for projecting through the belt, each of said fastening means having a pointed head portion for penetrating the belt, said head portion passing through said throat into the interior of said metal member and being held against withdrawal by said throat to clamp said member against the surface of said belt.

2. In a device of the character described, a conveyer slat for attachment to a flexible belt, comprising an elongated member having a plurality of resiliently restricted throats opening on one side thereof, and a plurality of fastening means for projecting through the belt for fastening said member to the belt, each of said

fastening means having a pointed head portion for penetrating the belt, each of said head portions passing through a resiliently restricted throat and being held against withdrawal thereby to clamp said member against the surface of the belt.

3. In a device of the character described, a conveyer slat for attachment to a flexible belt, comprising an elongated member having a plurality of resiliently restricted throats opening on one side of said member, a flat substantially rigid strip, substantially coextensive in length and width with said member, for holding the belt against said member, and a plurality of fastening means projecting through said strip and said belt for fastening said strip and belt to said member, each of said fastening means having a pointed head portion, each of said head portions passing through a resiliently restricted throat and being held against withdrawal thereby.

4. In a device of the character described, a conveyer slat for attachment to a flexible belt, comprising a substantially closed sheet metal member, said member having along its open side spaced opposed edge portions, said edge portions being inwardly inclined to provide a throat, a substantially rigid strip substantially coextensive in length and width with said member for holding the belt against said member, said strip consisting of sheet metal and having located therefrom a plurality of pins having heads, said heads passing through the belt and said throat into the interior of said member and being held against withdrawal by said throat.

5. In a device of the character described, a conveyer slat for attachment to a flexible belt, comprising a substantially closed sheet metal member, said member having along its open side spaced opposed edge portions, said edge portions being inwardly inclined to provide a throat, a substantially rigid strip substantially coextensive in length and width with said member for holding the belt against said member, said strip consisting of sheet metal and having located therefrom a plurality of pins having heads, said heads passing through said throat into the interior of said member and being held against withdrawal by said throat, and a rivet at each end of said tubular member projecting through said strip, belt and tubular member to hold the same together.

CLAIR S. REED.