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1,824,707

PLUG FOR LUG STRAPS AND METHOD OF MAKING SAME

Filed July 5, 1929

2 Sheets-Sheet 1

Fig. 1.

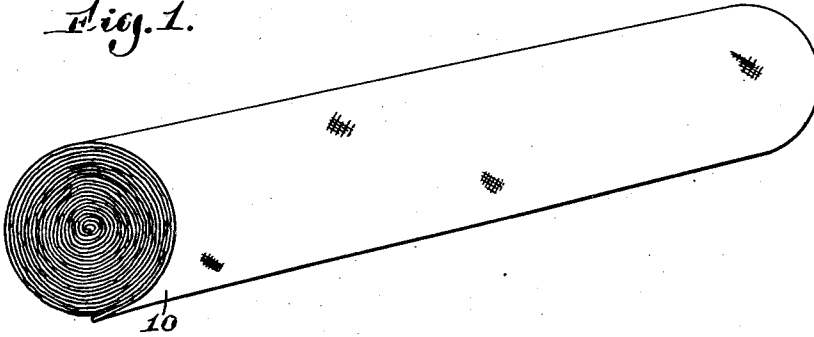


Fig. 2.

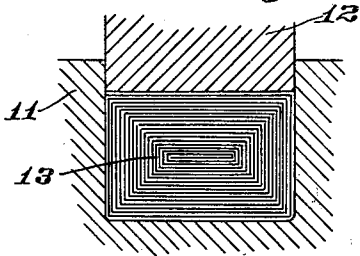


Fig. 3.

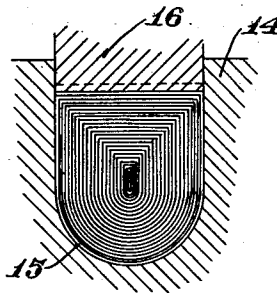


Fig. 4.

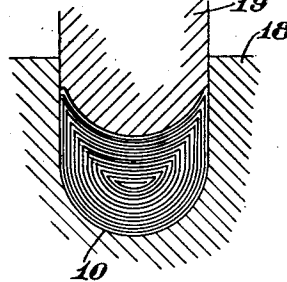
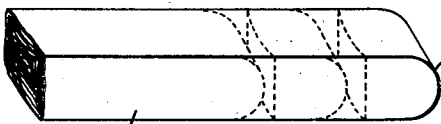
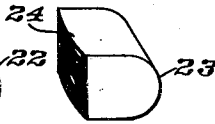


Fig. 5.

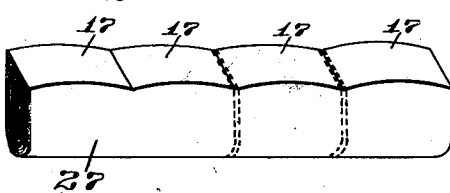
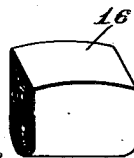


Fig. 6.

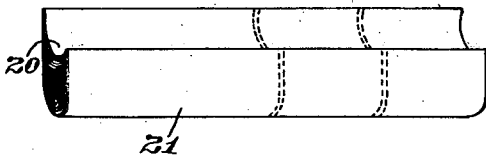
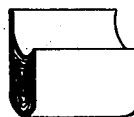


Fig. 7.

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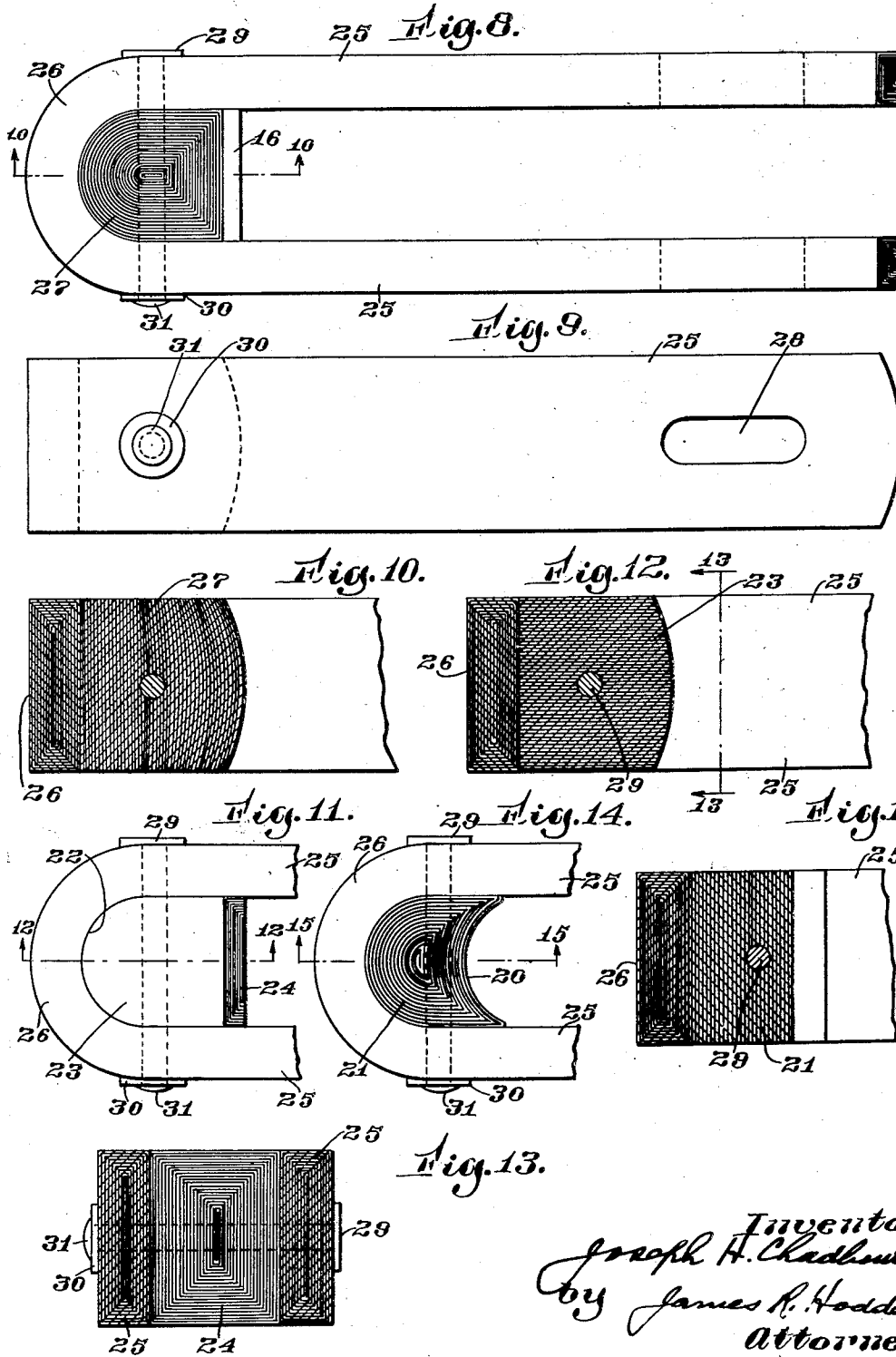
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PLUG FOR LUG STRAPS AND METHOD OF MAKING SAME

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2 Sheets-Sheet 2



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PLUG FOR LUG STRAPS AND METHOD OF MAKING SAME

Application filed July 5, 1929. Serial No. 375,930.

My present invention relates to lug straps for use in connection with looms and the like, and more particularly to an improved plug for lug straps and the method of making the same.

Lug straps for looms are ordinarily made of fabric, such as ticking or canvas, rolled up after having glue or other adhesive applied thereto and then molded into substantially rectangular shape in cross section and after the glue has set, the lug strap is formed into its final shape, that is, it is given a final U shape. The finishing operations are then made thereon and the lug strap is ready for market. Heretofore it has been usual to form the plug as an integral part of the structure, which necessitated applying auxiliary or additional pieces of fabric to the strip of fabric above referred to, making the finally formed rectangular member thicker at the middle than at the ends, so that when the lug strap was given its final form, the thickened middle portion became the plug or equivalent thereof. The bending operation resulted in forcing the fibres at the bend of the lug strap out of their initial position, placing too great a strain on the other curve of the lug strap and not enough strain on the inner curved portion. Also, it was found that the inner curved portion separated a considerable distance from the outer portion, with the result that the lug strap in use breaks away at the outer curved portion thereof, or the enlarged plug end tears away from the structure.

It was endeavored to correct this latter fault by passing a rivet through the enlarged end, but this expedient did not correct the fault as the breakage then occurred at the rivet hole, although it did prevent the plug from being separated from the side members of the lug strap.

In my present invention I have avoided the difficulties found in prior structures and have devised an improved plug for lug straps, which is preformed and afterwards added to the lug strap structure. The preforming may take place in a variety of ways, depending mainly on the type of lug strap it is desired to build, and numerous advan-

tages result from the structure. The usual lug strap portion is built up in the usual way but without the addition of any reinforcing pieces to cause an enlargement at the middle portion thereof, as in former construction. The result is, therefore, that on the forming of the lug strap proper there is produced a substantially rectangular member uniform as regards width and thickness throughout its entire length, which structure it has been found may be bent into a U shape without any appreciable distortion of the fabric plies at the bent portion. The lug strap is preferably bent around an arbor having a fixed contour so that the inner end of the lug strap is provided with a contour of predetermined shape. By preforming the plugs I am able to produce a lug strap in which the plug fits snugly against the fabric of the inner face of the U-shaped lug member and may be riveted in such position, the rivet employed being relatively light and being merely, therefore, a holding rivet and it has been found that with a lug strap manufactured in this manner the plug has the shock imparted thereto absorbed by the entire end of the lug strap, and because of the fact that this is so, and further that the plies of fabric in the bent end of the lug strap are in close engagement with each other and under practically equal tension that another life is imparted to the lug strap.

In carrying out my invention I so arrange the plies of fabric as to provide for the most economical use thereof and make, therefore, an elongated member composed of a roll of fabric impregnated with adhesive and hardened and set and which may have a plurality of plugs separated therefrom, preferably by sawing or cutting, and which plugs have the final shape necessary and which may be inserted in position in lug strap sides and ends with the assurance that the same will fit and may be held in position in any suitable manner as by rivets.

The principal object of my invention, therefore, is an improved method of manufacturing plugs for lug straps and the like.

Another object of my invention is an improved plug for lug straps.

Referring to the drawings illustrating the process by which my improved method may be practiced and the resulting product,

Fig. 1 shows an elongated roll of fabric and adhesive from which a blank containing a plurality of plugs may be formed;

Fig. 2 shows a forming press in which the roll illustrated in Fig. 1 is given a predetermined cross-sectional shape;

Fig. 3 is a section through a press similar to Fig. 2 but showing a different shape of plug member;

Fig. 4 is a cross-sectional view of a press similar to Figs. 2 and 3 but showing a still different shape imparted to the plug material;

Fig. 5 is a perspective view of the plug shape made in the press of Fig. 2 and with one of the plugs separated therefrom;

Fig. 6 is a perspective view of the plug material as formed in the press shown in Fig. 3, one of the plugs being shown separated therefrom;

Fig. 7 is a perspective view of the plug material such as has been formed in the press shown in Fig. 4, one of the plugs being separated therefrom;

Fig. 8 is a view of a plug as shown in Fig. 6 held in position in a lug strap;

Fig. 9 is a side elevation of Fig. 8;

Fig. 10 is a section on the line 10—10 of Fig. 8;

Fig. 11 is a plan view of one end of a lug strap similar to the one shown in Fig. 8 but fitted with a plug of the character shown in Fig. 5;

Fig. 12 is a section on the line 12—12 of Fig. 11;

Fig. 13 is a section on the line 13—13 of Fig. 12;

Fig. 14 is a plan view of a portion of a lug strap similar to that shown in Figs. 8 and 11 but fitted with a plug of the character shown in Fig. 7, and

Fig. 15 is a section on the line 15—15 of Fig. 14.

Referring to the drawings, 10 designates a layer of fabric, such as ticking or canvas, which has been impregnated with adhesive, such for example as glue, and rolled into cylindrical form, as illustrated in Fig. 1. While still in a moist condition such roll may be placed in a mold 11 of a press, such mold being provided with a substantially rectangular recess and into which is fitted a slidably mounted plunger 12. By the use of the rectangular recess in conjunction with the plunger 12 the roll illustrated in Fig. 1 is given a shape that is substantially rectangular in cross-section, as designated by the numeral 13 in Fig. 2, and the member 13 is held in position in the recess in the mold 11 until it has become set or in the

condition shown, for example, in Fig. 5. In place of the mold 11 having a rectangular recess therein I may employ a mold 14 provided with a recess designated to give to the roll composed of the fabric 10 a rounded shape on one end, as indicated by the numeral 15. With the mold 14 is employed a plunger 16, such plunger on its lower face being provided with a plurality of grooves therein, each groove forming in the roll, composed of the fabric 10, a plurality of raised portions 17, these raised portions being on the member 27 formed in the mold 14, as clearly shown in Fig. 6. In place of the mold 14 I may employ a similar mold 18 but utilize in connection therewith a plunger 19 that has a rounded lower end so as to provide a groove 20 extending along the length of the member 21 formed thereby.

In utilizing the member 13 to form plugs for use in lug straps, one end is preferably rounded, as indicated at 22 and a saw or sharp cutter is employed to cut transversely of the member 14 at the appropriate point so as to separate therefrom a plug 23 formed with one end 24 raised therefrom.

Referring now to Figs. 8 to 15 inclusive, there is shown in such figures a lug strap formed of a rectangular strip of fabric impregnated with glue and folded or formed into the U shape, as shown in the figures, such U shape consisting of the side member 25 and a rounded end member 26, the side members 25 being provided with elongated slots 28 through which holding members may be passed. The plug 23 above described as being cut off from the plug member 13 is fitted into the space between the side plates 25 and end member 26, as clearly shown in Fig. 11, and it will be noted that the contour of the rounded end 22 of such plug 23 coincides with the curvature of the inner face of the rounded end 26. After being positioned, the side members 25 and plug member 23 are drilled to receive a rivet 29, a washer 30 being placed on the end thereof and the end headed over, as indicated at 31, this structure firmly holding the plug 23 in position on the lug strap members 25 and 26. The close connection between the rounded end portion 26 and the rounded portion 22 of the plug 23 is clearly shown in Fig. 12. Also, in this form of the improved plug it will be noted that the rounded portion 24 consists of the plurality of upstanding plies formed of the layer 10 of fabric and, therefore, that a blow imparted to such rounded end will have merely the effect of spreading the plies outwardly but will not penetrate through such plies transversely.

Referring to Figs. 8 and 9, there is shown therein a form of the plug illustrated in Fig. 6 and in this form, which is held in position in the same manner as the form above de-

scribed, the rounded end 16 is the opposite to that shown in Fig. 5, and blows imparted to the plug cut from the member 27 will tend to be exerted transversely of the fabric.

5 In the form of the invention illustrated in Figs. 14 and 15, that form of plug cut from the member 31 shown in Fig. 7 is shown in position.

10 In all forms of my device the plug is given a predetermined shape corresponding with the curvature of the interior faces of the side members and end member of the lug strap illustrated in Figs. 8 to 15 inclusive and the holding of the same in position by riveting is for positioning purposes only, as the rounded end of the lug strap closely fitting with the inner curvature of the end member 26, any blows imparted to the face of the plug will be absorbed by the entire end of the lug strap. Further, the rounded end of the lug strap has the various elements thereof under substantial stress or strain and the breakage of lug straps at the end of the rounded portion has
25 been eliminated.

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

That improvement in the art of forming plugs of condensed textile layers for use in lug straps, which consists in utilizing a strip of textile material, having a width equal to a predetermined plurality of subsequent lug straps to be formed therefrom, forming from said fabric sheet an elongated
35 roll impregnated with adhesive, compressing said elongated roll into a condensed bar having a length equal to said plurality of lugs to be formed therefrom, dividing said bar into plug-sized sections by visible lines of division, and thereupon separating individual plugs from said bar on said lines
40 of division.

In testimony whereof, I have signed my name to this specification.

45 JOSEPH H. CHADBOURNE.

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