Jan. 17, 1939. A. C. TEETSEL 2,144,234

METHOD OF FORMING FRICTION FACINGS

Filed Nov. 9, 1936

Fig. 1.

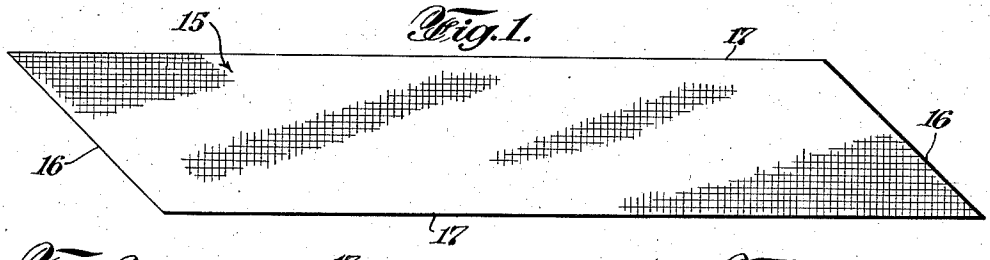


Fig. 2.

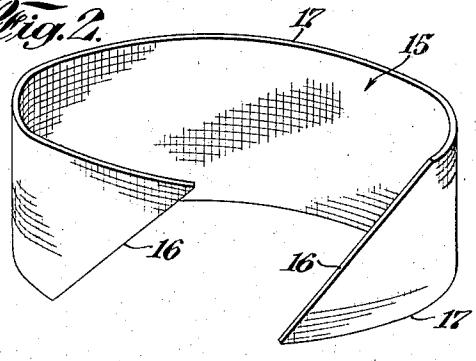


Fig. 3.

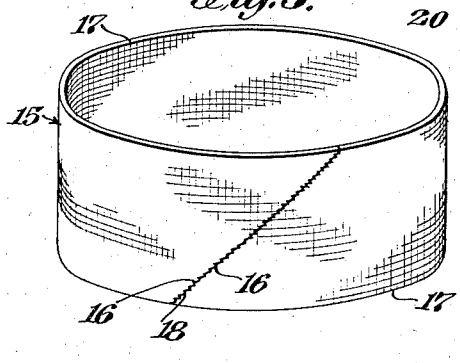
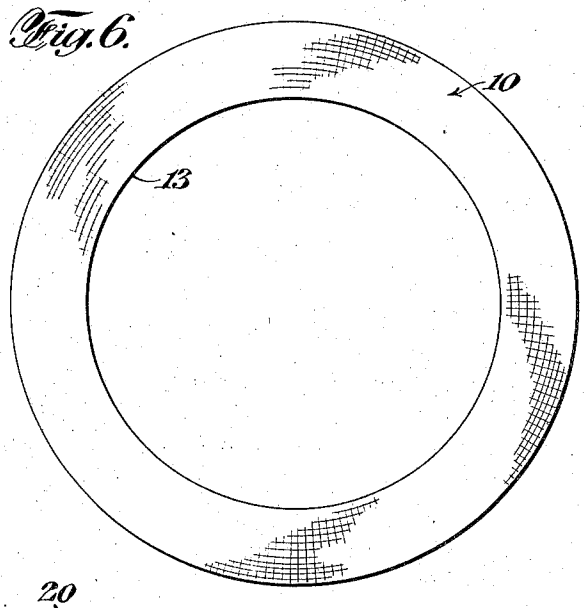


Fig. 6.



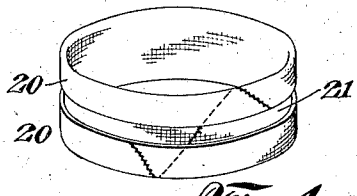


Fig. 4.

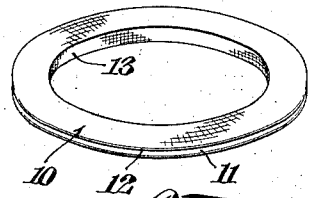


Fig. 7.

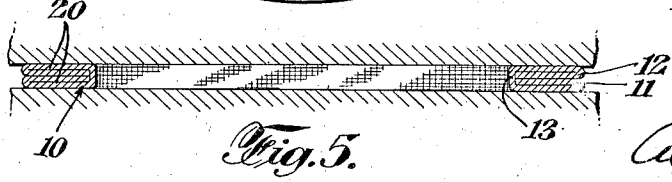


Fig. 5.

Alvin C. Teetsel INVENTOR

BY

Edwards, Brown & Cook

ATTORNEYS

Published by AsbestosClaims.Law
asbestosclaims.law/library/22422/1

Patented Jan. 17, 1939 2,144,234

UNITED STATES PATENT OFFICE

2,144,234

METHOD OF FORMING FRICTION FACINGS

Alvin C. Teetsel, Philadelphia, Pa., assignor, by mesne assignments, to Ferodo and Asbestos Inc., New Brunswick, N. J., a corporation of New Jersey

Application November 9, 1936, Serial No. 109,850

1 Claim. (Cl. 154—2)

This invention relates to friction material, and particularly to friction facings for brakes, clutches and the like.

The object of the invention is to provide a facing of the endless type, which will be efficient and durable.

A further object of the invention is to provide a method of formation of the facing from flat material preferably from blanks cut from continuous sheet or strip stock.

In the accompanying drawing illustrating the invention

Fig. 1 is a plan view of a blank as cut from sheet or strip stock;

Fig. 2 is a perspective view of the strip of Fig. 1 bent into generally cylindrical form;

Fig. 3 is a perspective view showing the bent strip of Fig. 2 with its meeting edges fastened to complete the cylinder;

Fig. 4 is a view of the cylinder of Fig. 3 on reduced scale flanged or cuffed over at each edge to provide double edged thickness in the blank;

Fig 5 is a sectional view showing the cuffed blank of Fig. 4 folded into flat form to assemble the cuffed edges as four thicknesses of an annular facing blank;

Fig. 6 is a plan view of the annular facing shown in Fig. 5; and

Fig. 7 is a perspective view of the finished facing on a reduced scale.

In the specific embodiment of the invention shown in the drawing the facing is provided in annular form as shown at 10 (Fig. 7) and built up of a plurality of thicknesses of material and comprising two re-entrantly folded portions 11, 12 connected by an inner portion 13, all formed from a continuous blank of sheet or strip material.

In the fabrication of the final facing, a blank 15 shown in plan view in Fig. 1 is first cut from the sheet or strip and has the cut edges 16 on similar bias at each end. The material may be of woven fabric or other fibrous formation and preferably is so cut that the long sides 17 follow the direction of the threads or cords where the material is of woven type.

This blank 15 is then bent into generally cylindrical formation (Figs. 2 and 3) and sewed or otherwise fastened as indicated at 18 to join together the ends 16 of the blank.

Each edge of the cylindrical blank of Fig. 3 is then turned outward into flanged or sleeved formation 20 (Fig. 4) leaving a space 21 between the sleeved edges for formation of the connecting strip 13 of the final facing.

The flanged cylinder formation of Fig. 4 is then folded along this center space 21 so as to bring the sleeves 20 face to face and mold the whole ring into annular disk formation as shown in Fig. 5. The sleeved edges provide the re-entrantly folded portions 11 and 12 and the space 21 leaves the central portion of the blank to form the connecting inner portion 13.

The folded ring 10 thus formed is then impregnated with a thermosetting fluid, is dried and is given a preliminary set in a heated die to vulcanize or otherwise fix the folds together forming a compact mass with strong mutual adherence. The vulcanized ring 10 is then curved by oven baking or other suitable treatment to complete the ring formation, after which the surface is ground and drilled, and otherwise finished to comply with specifications.

In the final structure four thicknesses of the original material are integrally joined together by the inner portion 13 and strongly adhere to each other due to the impregnation and vulcanizing. Where fabric material is used the strands of the original material extend in complete circular formation with overlapping ends resulting from the Z-formation of the seam (Fig. 4). Instead of impregnating the ring in its final folded condition, it may be impregnated with the thermosetting fluid at any previous point in the process. For instance, fabric of asbestos or other suitable material may be passed through a rubber-friction calender, or rubber cement brushed on both sides of the fabric, or the fabric may receive the frictioning rubber in some other suitable manner, and this rubberized fabric is used for the blank 15 being cut, bent, fastened, flanged and molded as described above, except that the sewed joint 18 of Fig. 3 may be replaced by an overlapped or scarfed engagement between the edges with pressure applied to the joint to produce a strong mutual adherence.

Substantially no wastage is involved in the form of the facing of this invention, and any desired number of thicknesses may be provided, all integrally joined and strongly compacted and fastened together. At the same time the original longitudinal distribution of the strands in the fabric is preserved in that these strands appear following circularly around the final facing product, and in tightly bound overlap at their ends where the ends of the seam are bent back in the flanging of the blank as illustrated in Fig. 4. The resulting structure is simple, strong and compact and extremely durable in use.

I claim:

The process of producing an annular friction facing comprising providing a single woven fabric strip with its ends cut on a bias, shaping said strip into generally cylindrical formation, permanently fastening the meeting edges of said ends so as to form a butt to butt joint, turning over the free edges of the strip in folded formation from each edge outwardly toward the center and then further folding said turned over edges so that they lie in face to face relation forming two identical pairs of folds in parallel planes, each pair on each side of a central plane being identically shaped and stressed, said material being provided with an impregnating thermosetting liquid, and pressing said strip in said folded form and applying heat to harden said thermosetting liquid.

ALVIN C. TEETSEL.

Published by AsbestosClaims.Law
asbestosclaims.law/library/22422/3