Jan. 26, 1932. F. T. WILLMOTT 1,842,925

COVERING OF OPTICAL CASES

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FIG. 1.

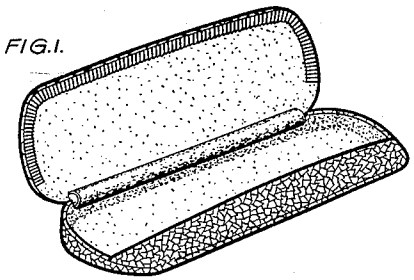


FIG. 2.

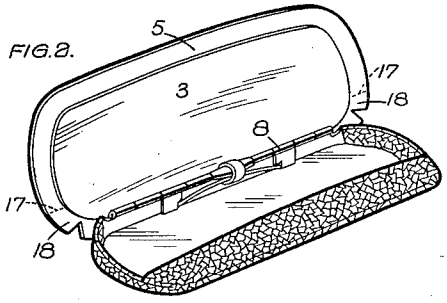


FIG. 3.

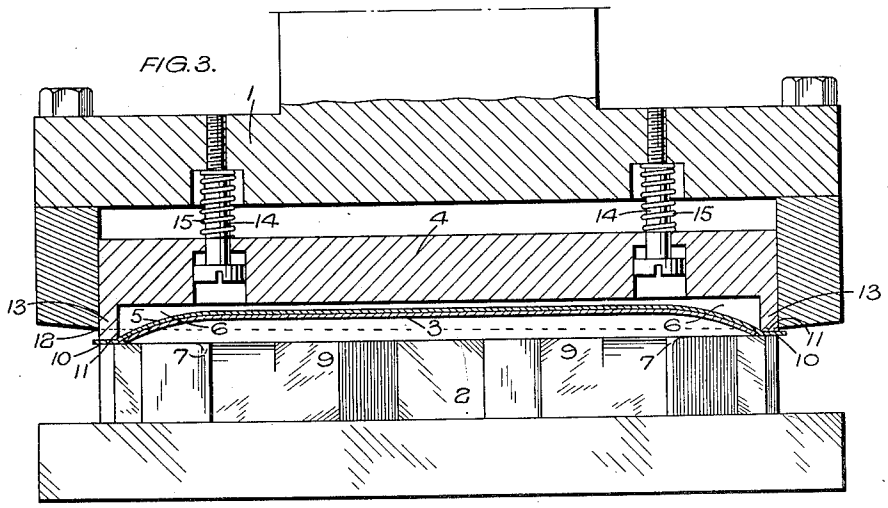
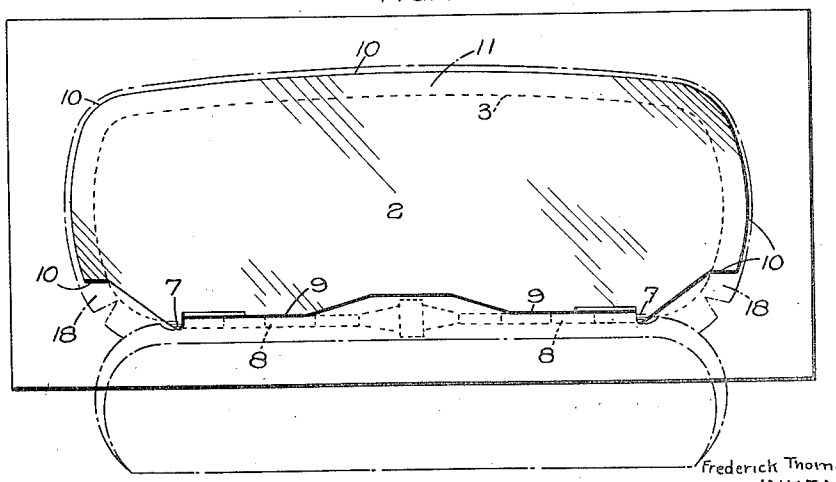


FIG. 4.



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FIG.5.

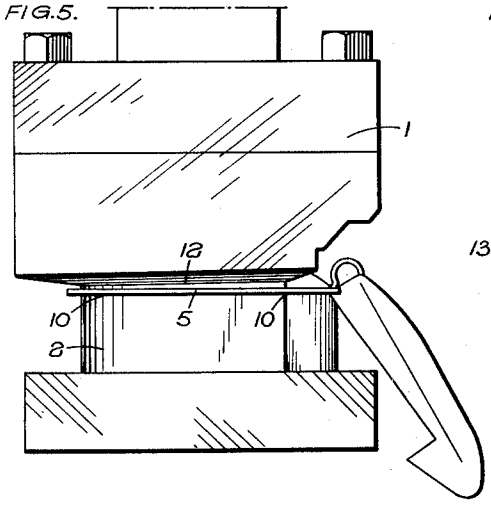


FIG.6.

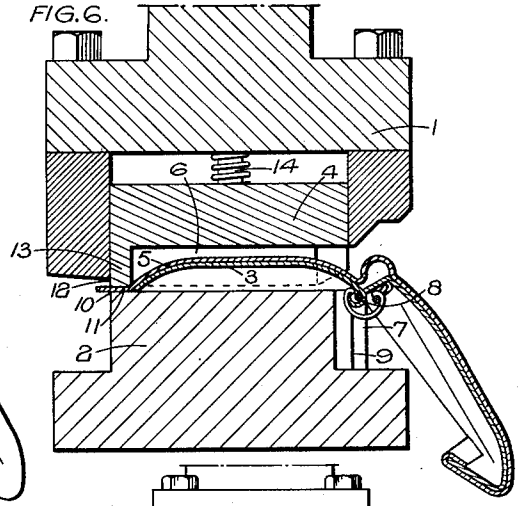
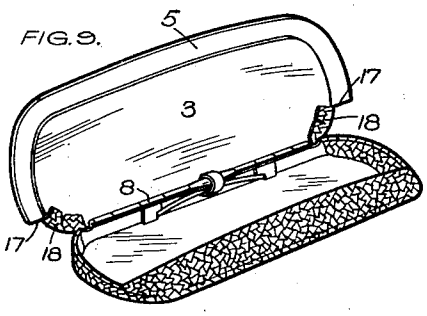


FIG.9.



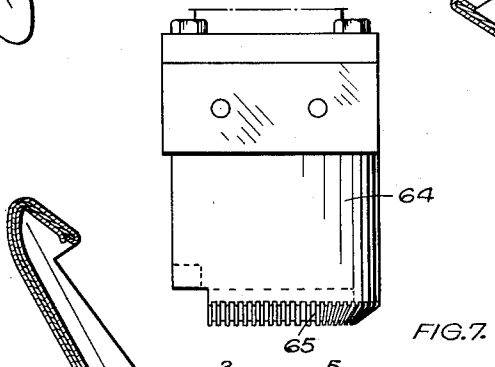
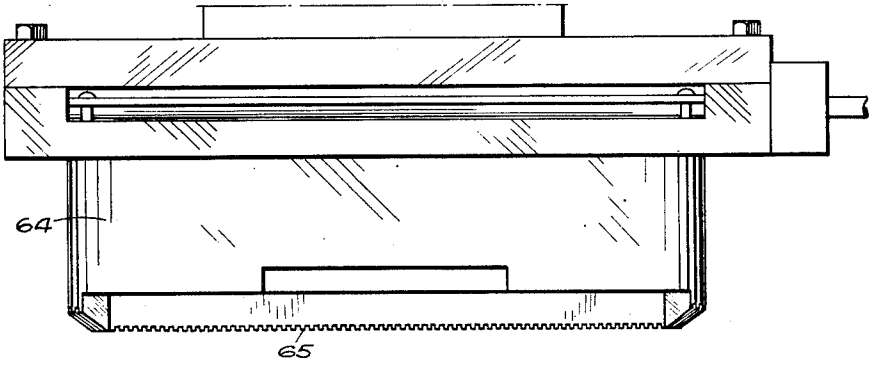


FIG.7.

FIG.8.



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UNITED STATES PATENT OFFICE

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COVERING OF OPTICAL CASES

Application filed July 31, 1930, Serial No. 472,136, and in Great Britain June 4, 1930.

This invention has reference to the covering of optical cases, more particularly those designed for carrying spectacles or eyeglasses, and of the kind in which there is a body portion having a turned over longitudinal edge and a lid portion hinged to the body parallel with said turned over portion and provided with a spring usually arranged to hold the lid either in a fully opened or fully closed position.

These cases are made of sheet steel, aluminium, or other metal, and they usually have to be covered with a textile material or leather and also lined. The common practice has been to cut blanks of covering material adapted to extend over the body portion and lid and having an excess of material sufficient to turn over the edges of the body and lid. This covering material is usually impregnated or coated or otherwise provided with a rubber, shellac or similar adhesive material so that it may be vulcanized or otherwise secured to the case. The lining is cut to a shape corresponding with that of the interior of the case body and lid and is glued or otherwise secured to the interior of the case. The usual method is first to cover the case, the excess material being folded over the edge of the lid and body and vulcanized under pressure or otherwise secured, a lining which extends to the periphery of the lid and body or nearly so being subsequently glued in position.

The peripheral length of the marginal or folded in part of the covering material, particularly on the lid, is considerably greater than the length of that portion of the lid which is available to receive it and to which it is to be secured, with the result that this folded in part, particularly at the corners, becomes irregularly pleated or lapped on itself so that it will be of two or three thicknesses at some points.

Further, the covering blanks having been cut before their application to the cases, it is commercially impossible to ensure that there will always be an even amount of marginal covering material projecting beyond the edge of the lid, and an even width of folded in material. These inequalities of width and thicknesses of material have in the past been hidden by the lining which extends substantially to the periphery of the lid, but this has been found very unsatisfactory in practice because if the lining is of velvet, which is commonly used, it is liable to fray at the edges and to come away from the lid.

The object of this invention is to manufacture improved cases obviating these defects, and in accordance therewith the covering material is folded over both the edge of the lid and lining material, this folded over portion being secured under pressure. Means are preferably provided for ensuring an exactly even width of folded over material, and means are preferably provided for absorbing the excess material.

Referring to the drawings:—

Figure 1 is a perspective view showing a spectacle case constructed in accordance with the present invention.

Figure 2 is a perspective view showing a spectacle case in the course of construction.

Figure 3 is a sectional view showing the tools used for trimming the edge of the lid covering material.

Figure 4 is a plan view corresponding with Figure 3.

Figure 5 is a side view of the tools shown in Figures 3 and 4.

Figure 6 is a sectional side view of the tools shown in Figures 3 and 4, with the case in position therein.

Figure 7 is a sectional view showing a further pair of tools used in finishing the covering of the lid.

Figure 8 is a rear view of the tools shown in Figure 7.

Figure 9 is a perspective view of the spectacle case before the lining is applied thereto.

In covering a case according to this invention, the first operations of cutting the blank of covering material, the blanks of lining material, and securing the covering material to the case, are carried out in the same manner as heretofore. By these means the body of the case is entirely covered and the lid covered but leaving an excess of covering material around the periphery of the lid, say, one quarter to five-sixteenths of an inch.

As previously pointed out, it has hitherto been commercially impossible to ensure an even width of marginal projecting covering material, and the first novel operation in the new method consists in positioning the partly covered case in a press and then trimming the edge of the covering material around the lid so as to leave an exactly even marginal projection. This is illustrated in Figures 3 to 6 and is accomplished by means of a pair of cutting tools 1, 2, corresponding in shape with that of the lid 3, but larger radially by an amount equal to the overlap of covering material desired, these cutting tools co-operating with a pressure plate 4 adapted to engage the covering material 5 overlapping the edge of the lid, a recess 6 in the pressure plate accommodating the dome of the lid. The operation is carried out as follows.

The case is placed face downwardly upon the lower tool 2, in which tool the case is positioned by a pair of shoulders 7 engaging the ends of the hinge 8 of the case and by a pair of faces 9 engaging the side of the hinge, the tool having an external cutting edge 10 corresponding in shape to the periphery of the lid 3, but larger than this by the amount of excess covering material 11 it is desired to leave overlapping the edge of the lid.

The upper tool 1 has an internal cutting edge 12 similar in shape and size to the cutting edge 10 of the lower tool, which tool is adapted to slide within the upper tool, so that a shear cut is imparted to the covering material 11 when it is inserted between the two tools. With the upper cutting tool is associated a pressure plate 4, which plate is adapted to engage the overlapping portion 11 of the covering, the plate 4 having the recess 6 in its under surface corresponding in shape with that of the lid of the case, and a lip 13 of substantially **C** shape partially surrounding this recess, the width of this lip corresponding with the amount of overlap desired. The lip is adapted to fit over the lid 3 of the case, when same is positioned in the lower tool, the **C** shaped lip then engaging the overlapping covering 11 and flattening it to obviate wrinkles during the cutting action, the open side of the lip giving clearance for the hinged side of the lid. The lip 13 of the pressure plate is adapted normally to project slightly from the face of the upper tool 1 so that it engages first with the covering, the pressure plate being mounted on bolts 14 so that it can slide in the upper tool to allow the latter to engage with the covering. Springs 15 are mounted on the bolts 14, so that the pressure plate normally projects from the face of the upper tool the plate being forced into a recess in the tool against the action of these springs.

After the case is positioned in the lower tool 2 the upper tool is approached, the pressure lip 13 contacting with the projecting covering material 11 which is thus held firmly in position between this ring and the lower tool 2. As the tools are further approached, the pressure plate slides in the recess in the upper tool 1, which tool finally engages the excess overlap projecting beyond the edge of the lip 13. The cutting edge 12 of the upper tool moves past that of the lower tool and trims all the excess covering material projecting beyond the pressure ring with a shearing action.

Thus a uniform width of covering is left overlapping the edge of the lid, and this overlap is adequately supported during the cutting action so that no tearing of the material or failure of the tools to trim the overlap correctly, can possibly occur.

It will be understood that the upper tool may be designed with the external cutting edge while the lower tool may have a co-operating internal cutting edge, the pressure ring or plate being then incorporated with the lower tool. The cutting tools are preferably arranged to give a shear cut, one end of the tools engaging before the other end, or the back before the front or vice versa.

It will be appreciated that it is impossible to get a pair of cutting tools which will extend close up to the hinge or body portion, and a small portion 18 of the excess material near the hinge and at each end is arranged to be folded under the lining instead of over the top thereof, these being the parts which have not been shaped by the trimming tools.

The trimming tools are provided with parts adapted to provide substantially radially disposed slits 17 (see Figure 2) from the periphery of the excess covering material to the periphery of the lid, the untrimmed parts 18 being then folded over and vulcanized or otherwise secured to the inner surface of the lid.

The untrimmed parts 18 of the covering material are then turned over the edge of the lid either by tools or by hand and vulcanized or otherwise secured.

The lining which may be made of pile fabric such as velvet, is then glued in both to the case body and the lid, the edge of the lining extending to the periphery of the lid and covering the parts 18 of the covering material which have not been trimmed.

The lined and partly covered case is then placed in a press which has a heated tool 64 constituting a crimping die of a shape corresponding with that of the folded in portion of the covering material, i. e. the outer periphery of the tool exactly corresponds with the outer periphery of the lid less the hinge and adjacent parts, and has a width corresponding with the width of the folded over portion.

The tool is heated either electrically or by other means and it has serrations 65 upon its under surface extending radially so as to

produce corresponding serrations or crimping across the width of the folded over portion. The tool may be extended to the full periphery of the lid less the hinge side, the serrations on the extended part acting on the lining and so more effectively securing this over the parts of the covering material adjacent the hinge which were turned over before the lining was inserted in the case. These serrations absorb the excess covering material of the folded over portion and press the folded over portion deeply into the velvet. The serrated surface of the tool is curved to correspond with the interior shape of the lid, all being so arranged that when a case is placed in the press and the edges folded over, the tool finally comes down on to the folded over portion, and vulcanize the folded over portion, the lining, and the lid altogether.

What I claim then is:—

1. In the manufacture of spectacle cases of the kind comprising a body portion and a lid portion, said portions being of metal and hinged together at one side, a lining for said case and a covering therefor, said covering comprising a single blank of textile material approximating in shape to that of the assembled body and lid portions, the lid portion of said covering material being radially larger than the lid portion of said case; positioning said lid portion in a press, and trimming the excess marginal covering material by means of a cutting tool associated with said press, said cutting tool being of similar shape to that of said lid but larger radially than said lid by a predetermined amount, whereby a predetermined and uniform width of covering is left outstanding beyond the periphery of said lid for folding within the inside thereof.

2. In the manufacture of spectacle cases of the kind comprising a body portion and a lid portion, said portions being of metal and hinged together at one side, a lining for said case, and a covering therefor, said covering comprising a single blank of textile material approximating in shape to that of the assembled body and lid portions, the lid portion of said covering material being radially larger than the lid portion of said case; positioning said lid portion in a press, and trimming the excess marginal covering material by means of a cutting tool associated with said press, and a second cutting tool adapted to co-operate with said first cutting tool, said cutting tools being of similar shape to that of said lid but larger radially by a predetermined amount, whereby a predetermined and uniform width of covering is left outstanding beyond the periphery of said lid for folding within the inside thereof.

3. In the manufacture of spectacle cases of the kind comprising a body portion and a lid portion, said portions being of metal and hinged together at one side, a lining for said case and a covering therefor, said covering comprising a single blank of textile material approximating in shape to that of the assembled body and lid portions, the lid portion of said covering material being radially larger than the lid portion of said case; positioning said lid portion in a press, and trimming the excess marginal covering material by means of a cutting tool associated with said press, and a second cutting tool adapted to co-operate with said first cutting tool, said cutting tools being of similar shape to that of said lid but larger radially by a predetermined amount, whereby a predetermined and uniform width of covering is left outstanding beyond the periphery of said lid for folding within the inside thereof, but leaving untrimmed portions of marginal covering material adjacent the hinged side, severing the untrimmed portions of marginal material from the trimmed portion thereof, and folding the untrimmed portions over the edge of said lid beneath the lining of the case.

4. In the manufacture of spectacle cases of the kind comprising a body portion and a lid portion, said portions being of metal and hinged together at one side, a lining for said case and a covering therefor, said covering comprising a single blank of textile material approximating in shape to that of the assembled body and lid portions, the lid portion of said covering material being radially larger than the lid portion of said case; positioning said lid portion in a press, and trimming the excess marginal covering material by means of a cutting tool associated with said press, and a second cutting tool adapted to co-operate with said first cutting tool, said cutting tools being of similar shape to that of said lid but larger radially by a predetermined amount, whereby a predetermined and uniform width of covering is left outstanding beyond the periphery of said lid for folding within the inside thereof, said outstanding portion of the covering being held during cutting by a pressure plate co-operating with one of said tools, said pressure plate having a lip thereon corresponding in shape to that of the overlap of covering.

5. A machine for attaching covering material to spectacle cases comprising a holding die having means for positioning and retaining the lid case, a cutting die co-operating with the holding die for trimming the edge of the covering material, and a pressure plate for clamping a marginal portion of the covering material.

6. A machine for attaching covering material to spectacle cases comprising a holding die having means for positioning and retaining the lid case, a cutting die co-operating with the holding die for trimming the edge of the covering material, and a pressure plate for clamping a marginal portion of the

covering material, said pressure plate being slidably mounted in a recess in said cutting die.

7. A machine for attaching covering material to spectacle cases comprising a holding die having means for positioning and retaining the lid case, a cutting die co-operating with the holding die for trimming the edge of the covering material and a pressure plate for clamping a marginal portion of the covering material, said pressure plate having a C shaped lip for pressing on the covering material.

8. A machine for attaching covering material to spectacle cases comprising a holding die having means for positioning and retaining the lid case, a cutting die co-operating with the holding die for trimming the edge of the covering material, and a pressure plate for clamping a marginal portion of the covering material, said pressure plate being resiliently mounted in said cutting die.

9. A machine for attaching covering material to spectacle cases comprising a holding die having means for positioning and retaining the lid case, and a crimping die having around its periphery projecting ribs for crimping the turned over edge of the covering material.

10. In the manufacture of spectacle cases of the kind comprising a body portion and a lid portion, said portions being of metal and hinged together at one side, a lining for said case and a covering therefor, said covering comprising a single blank of textile material approximating in shape to that of the assembled body and lid portions, the lid portion of said covering material being radially larger than the lid portion of said case; positioning said lid portion in a press, and trimming the excess marginal covering material by means of a cutting tool associated with said press, said cutting tool being of similar shape to that of said lid but larger radially than said lid by a predetermined amount, whereby a predetermined and uniform width of covering is left outstanding beyond the periphery of said lid for folding within the inside thereof, folding this outstanding portion of the covering material over the edge of the lid, and crimping it by a crimping tool.

11. In the manufacture of spectacle cases of the kind comprising a body portion and a lid portion, said portions being of metal and hinged together at one side, a lining for said case and a covering therefor, said covering comprising a single blank of textile material approximating in shape to that of the assembled body and lid portions, the lid portion of said covering material being radially larger than the lid portion of said case; positioning said lid portion in a press, and trimming the excess marginal covering material by means of a cutting tool associated with said press, said cutting tool being of similar shape to that of said lid but larger radially than said lid by a predetermined amount, whereby a predetermined and uniform width of covering is left outstanding beyond the periphery of said lid for folding within the inside thereof, folding portions of the outstanding covering material inwardly over the edge of the lid, securing a lining to the lid and folding the remainder of the outstanding portion of the covering material over the edges of the lid and lining material.

12. In the manufacture of spectacle cases of the kind comprising a body portion and a lid portion, said portions being of metal and hinged together at one side, a lining for said case and a covering therefor, said covering comprising a single blank of textile material approximating in shape to that of the assembled body and lid portions, the lid portion of said covering material being radially larger than the lid portion of said case; positioning said lid portion in a press, and trimming the excess marginal covering material by means of a cutting tool associated with said press, said cutting tool being of similar shape to that of said lid but larger radially than said lid by a predetermined amount, whereby a predetermined and uniform width of covering is left outstanding beyond the periphery of said lid for folding within the inside thereof, but leaving untrimmed portions of marginal covering material adjacent the hinged side, severing the untrimmed portions of marginal material from the trimmed portion thereof, folding the untrimmed portions of the covering material over the edge of the lid, securing a lining to the lid, and folding the remainder of the outstanding portion of the covering material over the edges of the lid and lining material.

13. In the manufacture of spectacle cases of the kind comprising a body portion and a lid portion, said portions being of metal and hinged together at one side, a lining for said case and a covering therefor, said covering comprising a single blank of textile material approximating in shape to that of the assembled body and lid portions, the lid portion of said covering material being radially larger than the lid portion of said case; positioning said lid portion in a press, and trimming the excess marginal covering material by means of a cutting tool associated with said press, said cutting tool being of similar shape to that of said lid but larger radially than said lid by a predetermined amount, whereby a predetermined and uniform width of covering is left outstanding beyond the periphery of said lid for folding within the inside thereof, securing a lining to the lid, folding this outstanding portion of the covering material over the edge of the lid and crimping it by a crimping tool.

14. In the manufacture of spectacle cases of the kind comprising a body portion and

a lid portion, said portions being of metal and hinged together at one side, a lining for said case and a covering therefor, said covering comprising a single blank of textile material approximating in shape to that of the assembled body and lid portions, the lid portion of said covering material being radially larger than the lid portion of said case; positioning said lid portion in a press, and trimming the excess marginal covering material by means of a cutting tool associated with said press, said cutting tool being of similar shape to that of said lid but larger radially than said lid by a predetermined amount, whereby a predetermined and uniform width of covering is left outstanding beyond the periphery of said lid for folding within the inside thereof, folding portions of the outstanding covering material inwardly over the edge of the lid, securing a lining to the lid, folding the remainder of the outstanding portion of the covering material over the edges of the lid and lining material, and crimping it by a crimping tool.

15. A spectacle case comprising a sheet metal body, a sheet metal lid hinged thereto, covering material of fabric secured to said body and said lid, and a lining secured to the inner surfaces of body and lid, said covering material extending over the exterior of the body and lid, and having a marginal portion extending over the edge of the lid and lid lining.

16. A spectacle case comprising a sheet metal body, a sheet metal lid hinged thereto, covering material of fabric, and a lining secured to the inner surfaces of body and lid, said covering material extending over the exterior of the body and lid and being secured thereto, and having a crimped marginal portion covering the edge of the lid and its lining.

In witness whereof I affix my signature.

FREDERICK THOMAS WILLMOTT.