

F. G. NEUBERTH.
METHOD OF MAKING EYELETS AND OTHER ARTICLES.
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1,099,716.

Patented June 9, 1914.

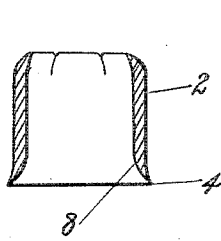


Fig. 1.

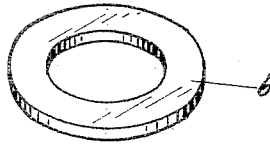


Fig. 2.

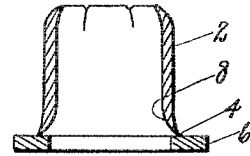


Fig. 3.

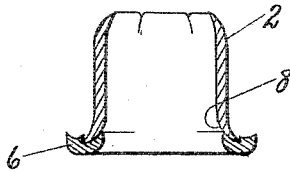


Fig. 4.

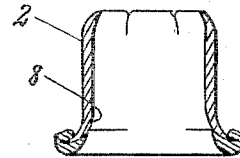


Fig. 5.

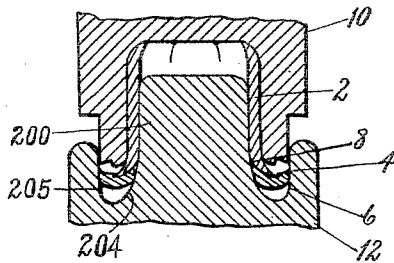


Fig. 6.

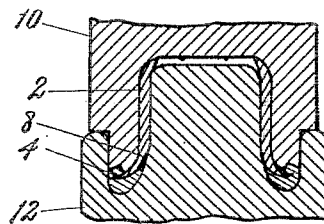


Fig. 7.

WITNESSES.

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METHOD OF MAKING EYELETS AND OTHER ARTICLES.

1,099,716.

Specification of Letters Patent.

Patented June 9, 1914.

Application filed April 23, 1904. Serial No. 205,368.

To all whom it may concern:

Be it known that I, FRANKLIN G. NEUBERTH, a citizen of the United States, residing at Waterville, in the county of New Haven and State of Connecticut, have invented certain Improvements in Methods of Making Eyelets and other Articles, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to an improved method of making eyelets and other articles which are provided with coverings of plastic or other material.

The invention has for its object to facilitate the manufacture of such articles and render their production more rapid and economical, and to this end it consists in imparting to a blank a shape for forming the desired article and securing covering material to the article.

In carrying out the invention as herein described a blank is shaped by pressure into the required form and the covering material is at substantially the same time pressed upon the article for securing it in place.

Figure 1 is a sectional view of an eyelet blank which I prefer to use. Fig. 2 is a perspective view of a mass of covering material. Fig. 3 is a sectional view of the blank and covering material in position to be united. Fig. 4 is a similar view after the operation of pressing the covering material onto the partially formed flange of the blank and spreading the flange has been commenced. Fig. 5 is a sectional view of the eyelet after the operation has been completed and the covering material molded about the flange. Figs. 6 and 7 show a mechanism which may be employed in practising this invention.

In practising my novel method in the manufacture of eyelets I prefer to use an eyelet blank such as shown in Fig. 1 of the drawings, although any other convenient form of blank may be used. The blank shown comprises a barrel 2 and a partially formed flange 4. The eyelet blank of whatever form is shaped by pressure to complete its formation, which, in the instance illustrated, consists in further outturning the partially formed flange and at the same time, or substantially the same time, that

the shaping of the blank is taking place a portion of covering material, which conveniently may be shaped as shown at 6 in the drawing, is pressed upon the flange to secure it thereto. It will thus be seen that at a single operation the body portion of the eyelet is formed and the covering material is attached to its flange.

In the specific example herein shown the covering material is pressed against the partially formed flange of the eyelet blank to cause the flange to cut into it, while at the same time, or substantially the same time, the flange is expanded or further outturned. This operation is illustrated in Figs. 4 and 5 of the drawings. The expanding or spreading of the flange may be effected by the pressure of the covering material against it, or by a suitably shaped tool engaging the eyelet near the base of the flange; but preferably by both of these forces acting together. In the instance herein shown the flange tends to curl downward as it is spread against the covering material so that it becomes interlocked with the covering material in such manner that even if the covering material should become cracked transversely of the flange the segment shaped pieces cannot readily be detached from the flange. As shown, the flange enters the covering material obliquely, whereby the covering material becomes distributed or located properly upon the opposite sides of the flange and the flange so embedded in the material that its edge is entirely inclosed and covered. Preferably the covering material is molded to shape its exterior surface, and this may, and preferably will, be done at the same time that it is attached to the flange of the eyelet.

In Figs. 6 and 7 I have shown the dies constituting one form of mechanism by which the method above described of making eyelets may be carried out, these dies, together with suitable mechanism for operating them to carry out the present method forming parts of the machine covered by a companion application, Serial No. 205,369, filed concurrently herewith. In these figures of the drawings 10 and 12 indicate dies for applying pressure to the eyelet blank and covering material to force the edge of the partially formed flange into the covering material, and, preferably, thereby spread the flange. The die 10 has a central recess

to receive the eyelet blank and the die 12 has an annular recess for receiving the covering material. The die 12 also has a central projection 200 to enter the barrel of the eyelet blank provided with an enlarged, tapering portion 204 between which and the base 8 of the partially formed flange the covering becomes wedged as the dies are brought together. The tapering face, acting through this covering material, aids in spreading the flange of the eyelet. The dies also have cooperating faces for molding the covering material during the attaching operation.

As fully disclosed in my companion application, above referred to, the washer 6 of covering material is supported at its outer and inner curved edges by the enlarged tapering portion 204 and the outer face 205 of the annular recess of the die 12, and the flange of the eyelet blank rests upon the washer, prior to the attaching operation. One of the dies, as the lower one, being moved relatively to the other die the washer of covering material is actively pressed against the edge of the eyelet flange, which causes the flange to cut into the covering material and the projection 200 to advance through the hole in the washer. As the projection advances through the washer the enlarged portion 204 and the face 205 act on the inner and outer edges of the washer and bend these edges in substantially the manner indicated in Fig. 6. This causes the outer edge portion of the washer to be bent slightly around the edge of the eyelet flange and also causes the inner edge portion of the washer to become wedged between the inner edge of the eyelet flange and the enlarged portion 204 of the projection, as also is indicated in Fig. 6. Thereafter as the movable die completes its stroke the pressure of the covering material against the partially outturned flange of the eyelet and the wedging of the covering material between the enlarged portion 204 and the base of the eyelet flange bends or spreads said flange, while at the same time the flange is caused to cut into the washer, both by the direct pressure of the flange against the washer and by the spreading of the flange, which causes its edge portion to move radially outward into the washer, thus the flange is spread both by the pressure of the covering material against its edge and by the wedging action of the covering material between the base of the eyelet and the enlarged portion of the die. While the flange of the eyelet is being spread to cut into and embed itself in the washer of covering material the covering material is being pressed between the cooperating surfaces of the two dies to mold it upon both sides of the flange of the eyelet and to shape and smooth the exposed surface of the covering. The rim of the die 10 is provided with a peripheral

recess as shown to receive the covering material on the lower side of the eyelet flange and mold it against the flange while the rim of the die itself supports the flange near its base, as shown in Fig. 7, and prevents the flange from being unduly spread or the eyelet from being crushed. As herein shown the bending of the washer of covering material is accompanied by the cutting into the material of the periphery of the flange of the eyelet blank.

It is to be understood that in the broadest aspect of the invention it is not essential that the eyelet or other blank have a continuous edge portion, as the portion of the blank to which the covering material is attached may comprise merely tangs or projections located on the edge or any other part of the article and adapted to be engaged with the covering material as the blank is formed into the desired article.

The operation of uniting the covering material and the article is facilitated by heating or otherwise softening the covering material and this may be done either before the operation of forming the article and uniting the covering material to it, or it may be done during the operation, as for instance, by heating the dies. I prefer, however, to treat the covering material by heating or otherwise to soften it before pressing it upon the article to which it is to be united. It also should be understood that the shaping of the blank and the pressing of the covering material against the edge portion or projections thereof need not be begun at the same time or extend through the same period, as one of these steps may be begun in advance of the other or continue after the other has been completed. It is preferable, however, that some portion of the shaping of the blank take place while the covering material is being pressed against it as the best interlocking of the article with the covering material is obtained by so doing.

Having described my invention, I claim as new and desire to secure by Letters Patent of the United States:

1. The method of making eyelets which is characterized by bending plastic covering material around the edge of the flange of an integral eyelet blank, and then forcing the covering material against the under edge of said flange to form an annular locking shoulder of covering material extending substantially parallel with the body portion of the covering material.

2. The method of making eyelets which consists in pressing covering material into contact with the upper face of the flange of an integral eyelet blank, bending the covering material around the edge of the flange, and pressing the covering material into contact with the lower face of the flange to form an annular locking shoulder of cov-

ering material extending substantially parallel with the body portion of the covering material.

3. The method of making eyelets which consists in pressing a washer of covering material upon the top face and downwardly within the flange of an eyelet, bending the outer edge portion of the washer around the edge of the eyelet flange and then forcing the bent portion of the washer against the under face of said flange.

4. The method of making eyelets which consists in pressing covering material into contact with the partially-formed flange of an eyelet blank, bending said material around the edge of the flange, bending the eyelet flange to impart the desired shape thereto and to interlock its edge with the covering material and forcing the bent portion of the covering material against the lower face of said flange.

5. The method of making eyelets which is characterized by bending covering material around the edge of the flange of an eyelet, holding said material from spreading laterally and forcing the bent portion of the material against the lower face of the eyelet flange.

6. The method of making eyelets which consists in heating sheet plastic material to soften it, bending said material around the edge of the partially-formed flange of an eyelet blank and simultaneously spreading the eyelet flange outwardly and forcing the bent portion of the covering material against the lower face of the flange.

7. The method of making eyelets which consists in bending sheet material about the flange of an integral eyelet blank, forcing the central portion of the material toward the barrel of the eyelet blank to shape that portion of the material to the base of the flange and forcing the outer portion of the material into contact with the lower face of said flange.

8. The method of making eyelets which consists in bending plastic covering material around the edge of the flange of an eyelet blank, forcing the bent portion of the covering material against the lower face of the flange and projecting a tool into the lacing passage to shape the adjacent material to the inner surface of the flange.

9. The method of making eyelets which consists in bending plastic covering material around the edges of an eyelet flange, forcing the bent portion of the covering material against the lower face of the flange to form an annular locking shoulder of covering material extending substantially parallel with the body portion of the covering material and projecting a tool toward the lacing passage to shape the adjacent material to the inner surface of the flange.

10. The method of making eyelets having a central lacing passage which consists in applying sheet material to the partially formed flange of an eyelet blank, bending said material around the edge of the flange, bending the eyelet flange to impart the desired shape thereto and to interlock its edge with the covering material, forcing the bent portion of the covering material against the lower face of said flange, and projecting a tool toward the lacing passage to reduce the thickness of that portion of the material applied to the base of the flange.

11. The method of making eyelets having a central lacing passage which consists in applying sheet covering material to the partially formed flange of an eyelet blank, warming said material slightly to increase its flexibility, bending said material around the edge of the flange, bending the eyelet flange to impart the desired shape thereto, and to interlock its edge with the covering material, forcing the bent portion of the covering material against the lower face of said flange, and projecting a tool toward the lacing passage to reduce the thickness of that portion of the material applied to the base of the flange.

12. The method of making eyelets which consists in bending plastic covering material around the edge of the flange of an eyelet and then forcing the bent portion of the covering material against the lower face of the flange.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANKLIN G. NEUBERTH.

Witnesses:

ADA M. GESNER,
FRANKLIN R. JOHNSON.