W. S. ELLIOT.

ARTICLE OF MANUFACTURE.

APPLICATION FILED OCT. 16, 1915.

1,188,424.

Patented June 27, 1916.

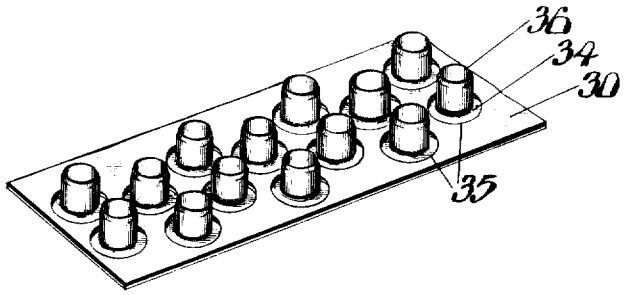


Fig.1.

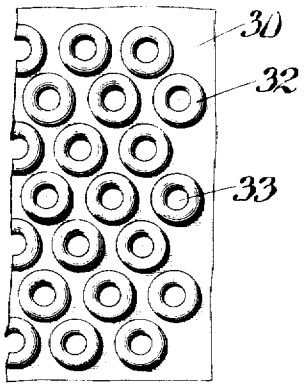


Fig.2.

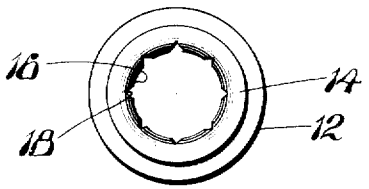


Fig.5.

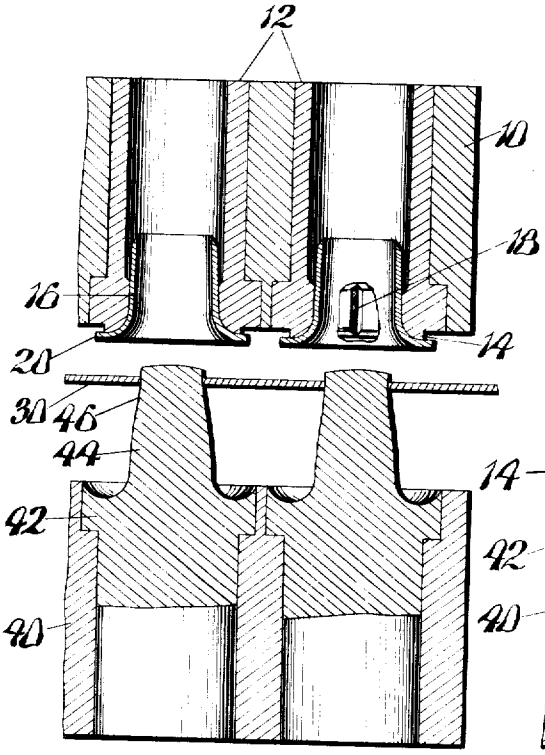


Fig.3.

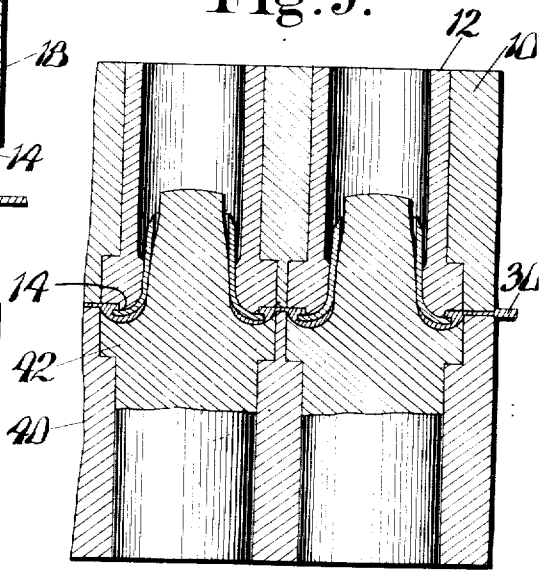


Fig.4.

INVENTOR.

William S. Elliot

By his attorneys

Nelson N. Howard

UNITED STATES PATENT OFFICE.

WILLIAM S. ELLIOT, OF FLORENCE, MASSACHUSETTS, ASSIGNOR TO UNITED FAST COLOR EYELET COMPANY, OF PORTLAND, MAINE, A CORPORATION OF MAINE.

ARTICLE OF MANUFACTURE.

1,188,424. Specification of Letters Patent. Patented June 27, 1916.

Original application filed December 18, 1914, Serial No. 877,982. Divided and this application filed October 16, 1915. Serial No. 56,317.

To all whom it may concern:

Be it known that I, WILLIAM S. ELLIOT, a citizen of the United States, residing at Florence, in the county of Hampshire and State of Massachusetts, have invented certain Improvements in Articles of Manufacture, 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 a novel article of manufacture herein shown as produced in the manufacture of covered eyelets.

In the manufacture of covered eyelets as heretofore carried out, the celluloid required to cover each individual eyelet flange has been separated from a sheet prior to or during the molding operation and it has been necessary to supply, within the periphery of the eyelet, all the celluloid necessary for the covering operation.

I have devised an improved method for manufacturing covered eyelets in accordance with one feature of which the material of a celluloid sheet is caused to flow inwardly within the periphery of the eyelet during the molding operation. This method is disclosed and claimed in my co-pending application Serial No. 877,982, filed December 18, 1914, of which the present application is a division.

The method of my invention may be carried out with particular advantage in covering simultaneously a large number of eyelet blanks. Under these circumstances the molding dies are so arranged that a sheet of celluloid operated upon has its material forced from the space between the dies into position to form a part of the flange, so that the thickness of the waste material remaining out of range of the dies is reduced substantially from the thickness of the original sheet. At the same time, the part of the sheet which covers the eyelet flange is substantially increased in thickness.

In order to reduce the amount of celluloid required to cover the eyelet flange the eyelet holding dies are so shaped as to fit beneath the flange adjacent to the barrel thus stopping the celluloid at a distance from the barrel beneath the flange. Celluloid is not required at this point from the standpoint of the construction of the eyelet. In addition to the saving of material the eyelet itself possesses an advantage in setting, as the annular groove formed between the celluloid and the eyelet barrel may be occupied by the material in which the eyelet is set, thus bringing the flange into closer proximity to the surface of the material.

In carrying out the steps above discussed there is produced a sheet of celluloid in which are embedded the flanges of a large number of metallic blanks while the barrels of the blanks project outwardly from the sheet. Upon one surface there appear a plurality of molded circular boxes of convex surface each surrounding an opening in the sheet. Upon the other surface of the sheet appears a plurality of circular openings from which project the eyelet barrels in spaced relation to the edge of each opening. Between the edge of the opening and the eyelet barrel appears the under side of the metallic flange, this being disposed somewhat beneath the surface of the sheet. Sheets of this kind may be readily handled and transported if desired and the eyelets may be completed by being sheared or punched out of the sheets at any time and place.

These and other features of the invention will be best understood and appreciated from the following detailed description of a preferred embodiment thereof and of a preferred form of apparatus for producing the article.

In the accompanying drawings,—Figure 1 is a view in perspective of one surface of the novel article; Fig. 2 is a plan view of the other surface; Figs. 3 and 4 are sectional views showing the position of the dies, respectively, preliminarily to and at the conclusion of the molding operation; and Fig. 5 is a plan view of one of the eyelet holding dies.

The invention is herein disclosed as related to the manufacture of eyelets covered with celluloid but it should be understood that this is for purposes of illustration only and that lacing hooks, studs or other articles to be covered could be substituted for the eyelet blanks illustrated and that any plastic compound could be substituted for the celluloid, all within the scope of the invention.

The novel article of manufacture is fully

illustrated in Figs. 1 and 2. In Fig. 2 the sheet of celluloid is shown as provided with a plurality of circular bosses 32 molded upon its surface. Each boss has a convex surface and surrounds an opening 33. The bosses are arranged in longitudinal rows and the individual bosses in each row are staggered with respect to the individual bosses in the adjacent row in order to permit the grouping of the greatest possible number of bosses in the same area. The other surface of the article is shown in Fig. 1 where the sheet 30 of celluloid is shown as provided with a plurality of circular openings 35. Each of these openings is concentrically arranged with respect to a corresponding boss on the other surface of the sheet and each opening is of somewhat smaller diameter than its corresponding boss. Each of the openings 35 is provided about its margin with a metallic bottom 34 which is formed by the underside of the flange of the metallic eyelet blank. The bottom 34 merges into a barrel 36 which extends outwardly from the plane of the sheet 30 and in a spaced relation to the edges of the openings 34.

A preferred form of apparatus for producing the novel article above discussed will now be described.

The eyelet blanks are held in a die plate 10 which is provided with a row of bored and countersunk holes to receive the individual dies. Each die 12 has a thick flange at its outer end from the surface of which projects a flange-supporting annular shoulder 14. This shoulder is shaped to fit beneath the flange of an eyelet blank supporting the flange nearly to its edge and also serving to prevent the flow of celluloid inwardly toward the barrel. Each die 12 is provided with a portion 16 of reduced diameter which is intended to engage the eyelet barrel for about half of its length leaving the remainder free as shown in Figs. 3 and 4. In order to make allowance for slight variations in the size of the barrel of the eyelet blanks, the portion 16 is provided with deep longitudinal scorings 18. The diameter of the reduced portion 16 of each die is such that when an eyelet blank is forced into place it will be firmly retained by friction.

The coöperating molding die plate is provided with a plurality of individual dies 42 each having a flanged outer end shaped to form the convex curved surface of a boss 32. Each die 42 has also a solid projecting spindle 44. At its base the spindle is shaped to fit exactly within the upper end of the barrel of the eyelet blank. Above this portion it is tapered and at its outer end it is provided with a cylindrical portion 46 of reduced diameter. The boss forming recesses of the dies 42 are disposed below the plane of the surface of the plate 40 so that in the molding operation the plate may press upon those portions of the celluloid sheet which are outside the periphery of the eyelet blanks. The coöperating individual dies are so arranged in both plates that a sheet 30 of celluloid pressed between them will have its material forced into the space about the flange of the eyelet blanks so that the portions of the sheet located out of range of the dies will be substantially reduced in thickness. Before presenting the celluloid sheet to the action of the dies the sheet is punched with holes arranged simultaneously to the spindles 44. The diameter of the holes is slightly less than the diameter of the tapered portion of the spindles 44 so that when the celluloid sheet is placed upon the lower die plate it will readily settle itself upon the ends of the spindles.

The preliminary relation of the dies, the eyelet blanks and the punched celluloid sheet is shown in Fig. 3. The position of these elements at the conclusion of the molding operation is shown in Fig. 4 from which it will be apparent that the celluloid is molded over the entire upper surface of the eyelet blank and forced under the edge of the eyelet flange where it is stopped by the supporting flange 14 so as to form an annular shoulder. After the molding has been completed the dies are separated and the sheet of celluloid removed in the condition shown in Figs. 1 and 2.

The term "celluloid" is used herein for convenience but it is to be understood that it is within the scope of the invention to use any other pyroxylin compound or homogeneous material capable of being molded or formed in the required manner.

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

1. An article of manufacture comprising a sheet of non-metallic homogeneous material having a plurality of eyelets embedded therein, the sheet having holes registering with the eyelets and forming c ntinuous passages with the openings through the eyelets.

2. An article of manufacture comprising a sheet of celluloid having a plurality of eyelets embedded therein with the barrels of the eyelets projecting from one surface of the sheet, the sheet having molded on its other surface a plurality of raised and rounded bosses disposed concentrically with respect to the eyelet barrels, and the sheet having holes through the bosses registering with the eyelets and forming continuous passages with the openings through the eyelet barrels.

3. An article of manufacture comprising a sheet of celluloid having a plurality of blanks embedded therein with the shanks of the blanks projecting from one surface of

the sheet in parallel rows, there being a curved opening in said surface of the sheet about each shank, the sheet having molded on its other surface a plurality of raised and rounded bosses each disposed concentrically with respect to one of the projecting shanks.

4. An article of manufacture comprising a sheet of pyroxylin material having a plurality of circular recesses in one surface, each recess having an annular metallic bottom and an outwardly extending shank merging into the bottom.

5. An article of manufacture comprising a sheet having a plurality of circular recesses in one surface, each recess being provided with a metallic bottom extending about the edge of the recess below the surface of the sheet and merging into an outwardly extending barrel which passes out from the opening in spaced relation to the edge of the recess.

6. An article of manufacture comprising a sheet having a plurality of thick annular bosses molded on one surface, a plurality of circular recesses in the other surface of the sheet of less diameter than the bosses and disposed symmetrically with respect to the bosses, and a plurality of metallic eyelet blanks, each blank being disposed with its flange embedded in the material of one of the bosses and the material being spaced from the barrel of the eyelet so as to form an annular recess about the barrel, there being a continuous passage through the barrel of each eyelet and the corresponding boss.

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

WILLIAM S. ELLIOT.

the sheet in parallel rows, there being a curved opening in said surface of the sheet about each shank, the sheet having molded on its other surface a plurality of raised and rounded bosses each disposed concentrically with respect to one of the projecting shanks.

4. An article of manufacture comprising a sheet of pyroxylin material having a plurality of circular recesses in one surface, each recess having an annular metallic bottom and an outwardly extending shank merging into the bottom.

5. An article of manufacture comprising a sheet having a plurality of circular recesses in one surface, each recess being provided with a metallic bottom extending about the edge of the recess below the surface of the sheet and merging into an outwardly extending barrel which passes out from the opening in spaced relation to the edge of the recess.

6. An article of manufacture comprising a sheet having a plurality of thick annular bosses molded on one surface, a plurality of circular recesses in the other surface of the sheet of less diameter than the bosses and disposed symmetrically with respect to the bosses, and a plurality of metallic eyelet blanks, each blank being disposed with its flange embedded in the material of one of the bosses and the material being spaced from the barrel of the eyelet so as to form an annular recess about the barrel, there being a continuous passage through the barrel of each eyelet and the corresponding boss.

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

WILLIAM S. ELLIOT.

Corrections in Letters Patent No. 1,188,424.

It is hereby certified that in Letters Patent No. 1,188,424, granted June 27, 1916, upon the application of William S. Elliot, of Florence, Massachusetts, for an improvement in "Articles of Manufacture," errors appear in the printed specification requiring correction as follows: Page 3, lines 15 and 24, claims 5 and 6, before the word "sheet" insert the compound word *non-metallic;* same page, line 21, claim 5, for the word "opening" read *recess;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 5th day of September, A. D., 1916.

[SEAL.]

F. W. H. CLAY,
Acting Commissioner of Patents.

Cl. 24—142.

Corrections in Letters Patent No. 1,188,424.

It is hereby certified that in Letters Patent No. 1,188,424, granted June 27, 1916, upon the application of William S. Elliot, of Florence, Massachusetts, for an improvement in "Articles of Manufacture," errors appear in the printed specification requiring correction as follows: Page 3, lines 15 and 24, claims 5 and 6, before the word "sheet" insert the compound word *non-metallic;* same page, line 21, claim 5, for the word "opening" read *recess;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 5th day of September, A. D., 1916.

[SEAL.]

F. W. H. CLAY,
Acting Commissioner of Patents.

Cl. 24—142.