Oct. 6, 1931. S. A. NEIDICH 1,826,669

TUBE AND METHOD OF FORMING THE SAME

Original Filed Nov. 14, 1928

FIG. I.

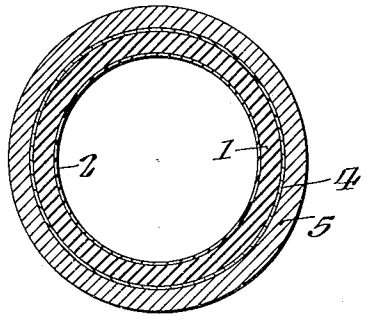


FIG. II.

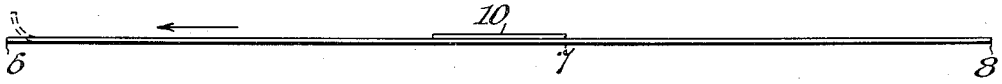


FIG. III.

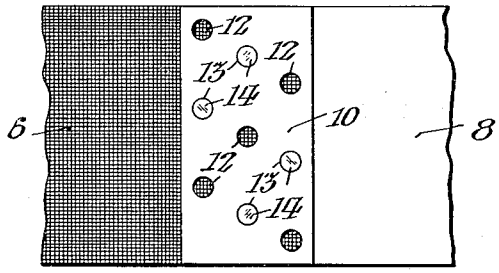
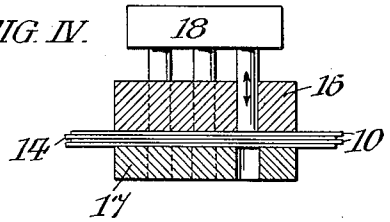


FIG. IV.



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UNITED STATES PATENT OFFICE

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TUBE AND METHOD OF FORMING THE SAME

Original application filed November 14, 1928, Serial No. 319,274. Divided and this application filed April 17, 1930. Serial No. 444,950.

This is a division of my original application Serial No. 319,274 filed November 14, 1928, for Letters Patent of the United States for improvement in tubes and methods of forming the same.

My invention may be advantageously employed in the manufacture of fancy tubes adapted for forming casings of fountain pens, pencils, umbrella handles, etc., from sheet celluloid, cellulose nitrate, cellulose acetate, other products of cellulose, or any suitable substance which may be formed into a tube by rolling a primarily plane sheet moistened with a solvent of such substance which causes the contiguous convolutions to cohere.

The present cost of plain celluloid is about forty cents per sheet (.010″ x 20″ x 50″), but celluloid including metallic powders forming clouded effects therein, costs ninety cents per sheet, and what is known as "pearl" celluloid, viz., clear celluloid in which fish scale powder is suspended and which has the appearance of mother of pearl, costs $2.50 per sheet. Altho it is highly advantageous to use as little as possible of such costly fancy materials in such tubes; they have heretofore been made entirely of the costly materials. The essential feature of my invention is such construction, arrangement and disposition of a minimum quantity of the costly material in a tube formed principally of cheaper material, as to convey the impression that the entire tube is formed of such costly material. As hereinafter described, such minimum quantity of such fancy material may be in the form of an extremely thin sheet, which I term a pattern piece, of such extent as to form but a single convolution in the tube, and such pattern piece may be covered and its beauty enhanced, by transparent material in which light is refracted and reflected, and, if such pattern piece be translucent, it may be backed by opaque material concealing the contents of the tube such as ink in a fountain pen or the metal or the wooden stick of an umbrella or cane.

My invention includes the various novel features of procedure, construction, and arrangement hereinafter more definitely specified.

In said drawings: Fig. I is a cross sectional view of a tube conveniently embodying my invention.

Fig. II is a longitudinal edge view of a sheet of material with a pattern piece thereon, forming a tube blank.

Fig. III is a fragmentary plan view of a portion of the tube blank shown in Fig. II.

Fig. IV is a fragmentary vertical sectional view of die means for punching the pattern and filling pieces shown in Fig. III.

Referring to Fig. I; the inner tube 1 may be formed of cheap material in any convenient way, for instance, by boring a solid rod of celluloid or the like, or by extrusion in primarily tubular form, or by rolling a thin sheet of the desired material while moistened with a suitable solvent. Acetone is a suitable solvent for celluloid and cellulose nitrate; but I prefer to employ ethyl acetate or a mixture of alcohol and ether as a solvent for cellulose acetate. The latter is preferable to celluloid for the purposes herein contemplated, because it is non-inflammable.

Said inner tube 1 may be translucent, but is preferably opaque, or has an opaque inner portion 2, if it is desired to conceal the contents of the tube, as the ink in a fountain pen or the metal or wooden stick of an umbrella or cane. Said inner tube 1 may be entirely surrounded and thus concealed by a tube of fancy material 4; formed from what I have termed a pattern piece. Said pattern piece 4 may be entirely covered by the outer tube 5 which may be transparent celluloid or the like.

Such a tube as shown in Fig. I may be formed by rolling the primarily plane sheet shown in Fig. II which may be formed of celluloid or the like .010 of an inch thick, and of which the portion from 6 to 7 may be opaque white and the portion from 7 to 8 may be clear. The pattern piece 10 may be a primarily plane sheet of celluloid or the like, of fancy appearance, for instance, what is known to the trade as mottled blue, i. e., a mixture of different shades or tints of translucent blue celluloid. Such a blank as indi-

cated in Fig. II may be moistened with a solvent and rolled to form such a tube as shown in Fig. I, wherein the fancy strata 4 is formed by the pattern piece 10 between the opaque inner tube 1 formed by the convolutions of said sheet from 6 to 7, and the translucent tube 5 is formed by the portion of said sheet 7 to 8.

As indicated in Fig. III, the pattern piece 10 may have perforations 12 and 13 made therethru and said perforations 12 may be left open so that the opaque white material may show thru, and the perforations 13 may be plugged with filling pieces 14, for instance, of pearl celluloid. When said tube blank shown in Figs. II and III is rolled to form a tube, said pattern piece 10 forms a complete convolution therein and is covered and its beautiful appearance enhanced by the clear portion of said sheet from 7 to 8.

As indicated in Fig. IV; the pattern piece 10 may be punched with the perforations 12 and 13 and the filling pieces 14 be simultaneously punched, by inserting both the pattern piece and the blank for the filler 14 between die members 16 and 17 and contemporaneously punching the same with the die 18.

I do not desire to limit myself to the precise details of operation, construction, and arrangement herein set forth, as it is obvious that various modifications may be made therein without departing from the essential features of my invention, as defined in the appended claims.

I claim:

1. A tube comprising a sheet of a cellulose product evolutely rolled, and a pattern piece inclosed between the convolutions of said sheet; the portion of said sheet extending outwardly from said pattern piece being translucent, so that it is visible therethru wherein the pattern piece is translucent; and a portion of the sheet extending inwardly therefrom is opaque and conceals the contents of the tube.

2. A tube as in claim 1; wherein the pattern piece is perforated.

3. A tube as in claim 1; wherein the pattern piece is perforated and a perforation thereof is filled with material visibly differing from it.

In testimony whereof, I have hereunto signed my name at Burlington, New Jersey, this 19th day of December, 1929.

SAMUEL A. NEIDICH.