(No Model.)

J. R. FRANCE.

METHOD OF MAKING AND ATTACHING BUTTON HOLE SECTIONS TO CELLULOID ARTICLES.

No. 421,860. Patented Feb. 18, 1890.

Fig. 1.

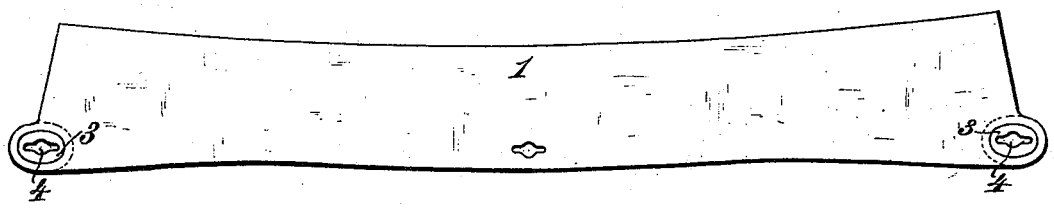


Fig. 2.

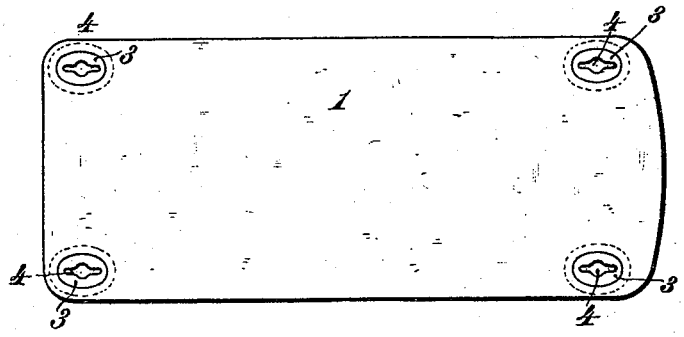


Fig. 3.

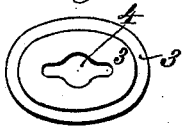
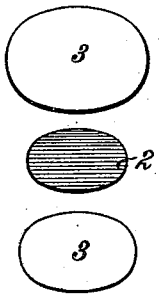


Fig. 4.



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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING AND ATTACHING BUTTON-HOLE SECTIONS TO CELLULOID ARTICLES.

SPECIFICATION forming part of Letters Patent No. 421,860, dated February 18, 1890.

Application filed January 3, 1889. Serial No. 295,304. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH R. FRANCE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Collars and Cuffs, of which the following is a specification.

In the manufacture of collars and cuffs from pyroxyline compounds it is desirable to form the button-holes of a fabric or material which will neither tear nor break, and which is composed of substances which not only possess a considerable degree of flexibility and elasticity, but which will neither fray out, tear, nor break under the repeated manipulations of the shank of the button. It is also an essential feature of this class of manufactures that the button-hole sections shall be composed of a material that can be cleansed at the same time with and in the same manner as the body of the collar, cuff, or other article without discoloration.

Hitherto it has been customary in manufacturing water-proof collars and cuffs according to one method to use a piece of membranous tissue cemented and pressed between two pieces of plastic material from which the collar or cuff was made; but this method does not meet the desired requirement, inasmuch that when the tip or lip of the collar is bent over on itself, the tissue, which is held rigid, breaks very easily and does not in this case add to the strength of the collar. According to another method pieces of muslin in which a button-hole has been worked has been cemented around an opening in a collar or cuff; but muslin not being water-proof becomes easily soiled and soon frays out, and is objectionable, therefore, in the class of goods called "water-proof;" and, furthermore, muslin, when interposed between two sheets of celluloid, becomes rigid and non-elastic, and will cause the celluloid to break when the tip or lip of the collar is bent over on itself.

It is the purpose of my invention to provide a water-proof collar, cuff, or shirt front which shall overcome the objections just stated and furnish an article of wear that has a novel button-hole formed in a material of different character as compared with the body of the article to which it is applied, said button-hole sections possessing a permanent flexibility and being to some extent elastic, while the material thereof can be readily cleansed or wiped clean, like the body of the collar itself. This object I accomplish by the novel method or process hereinafter fully set forth, and then definitely pointed out in the claims following this specification.

Referring to the accompanying drawings, Figure 1 is a plan view of a collar constructed according to my invention. Fig. 2 is a similar view of a cuff. Fig. 3 is a detail plan view of a button-hole section. Fig. 4 is a detail plan view showing the parts of the button-hole section separated or prior to being cemented together.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a collar or cuff of any desired fashion or style, made of celluloid or other pyroxyline compound, having at each place where a button-hole is to be provided an oval or similar shaped opening which is considerably larger than the finished button-hole. The section composing the button-hole is composed of a piece of tanned calf-skin or sheep-skin 2, to one or both sides of which is cemented a very thin piece of film 3, of celluloid or other pyroxyline compound, such pieces or films 3 being of larger dimensions than the piece of tanned calf-skin or sheep-skin. On a large scale the tanned skins could be in thin sheets, to one or both sides of which thin sheets of celluloid are cemented by heat and pressure, the sections to comprise a button-hole being subsequently punched out of the required dimensions, so as to be greater in size than the aforesaid oval or similar-shaped openings in the body of the collar or cuff. The section is then cemented to the collar, cuff, or shirt-front by heat and pressure in or over the opening therein, in such manner that the tanned calf-skin or sheep-skin projects into said oval openings in the collar or cuff, and subsequently the slit 4, constituting the button-hole, is punched out; but, as shown, the films or sheets of celluloid are cut out, so as to be of dimensions larger than the flexible and elastic membrane, so that the celluloid sheets project beyond the edges of the interposed

membrane, and such projecting edges are cemented to the celluloid collar or other article around the opening therein. The button-hole is isolated from the edge of the oval opening in the collar or cuff, and constitutes a flexible button-hole section that is to some extent elastic.

The tanned calf-skin or sheep-skin I have found in practice will not become rigid by reason of the "Arlington plastic" or celluloid pieces cemented thereto, and consequently the button-hole remains at all times sufficiently flexible and elastic as to permit it to be conveniently buttoned and unbuttoned, and will not tear or break under considerable pressure or strain. At the same time it can be as readily wiped clean as the plastic body of the collar or cuff itself. It has been found desirable, also, in place of the tanned calf-skin, to use rubber tissue or sheeting, the great elasticity of rubber being very desirable for this use, besides combining all the requisite water-proof qualities. For this purpose I use a sheet of rubber prepared in the ordinary well-known manner, and having mixed with it suitable pigments to give it a white appearance, to one or both sides of which I attach by cementing and by pressure, with or without heat, a thin sheet or film of Arlington plastic or celluloid.

In practice I prefer to use the sheet of rubber about fifteen one-thousandths of an inch thick and the pyroxiline compound—such as Arlington plastic or celluloid—in sheets of about five one-thousandths of an inch thick. Out of this composite sheet I cut or punch the oval sections and then cement them to the collar or cuff or shirt-front by pressure, with or without heat, in or over the oval openings, in the same manner as that just previously described in using the tanned calf-skin.

I may also use in the button-hole sections pieces of a fabric or compound invented by me and termed "para-pyroxyline," the same being composed of caoutchouc and pyroxyline ground together on calendar-rolls, and then subsequently treated—as, for example, vulcanized at a low heat. This compound, which is covered by an application filed by me the 27th day of March, 1889, Serial No. 304,958, possesses great strength and flexibility, and is perfectly water-proof, while it is not quite as elastic as the rubber sheeting mentioned in this application. Out of this compound I may form the oval pieces or sections shown in Fig. 3 in place of the tanned sheep or calf skin described. I may also use chamois leather or undressed kid in place of said skins.

It will be observed that in my invention the films of celluloid are of greater dimensions than the interposed flexible or elastic membrane, so that the latter can fit between the edges of the oval opening in the collar or cuff, while those portions of the celluloid films or sheets which extend or project beyond the edges of the flexible or elastic film are cemented to the body of the collar or cuff on opposite sides thereof.

I am aware of the Letters Patent to J. G. Jarvis, No. 343,903, dated June 15, 1886; but my button-hole section is a materially different thing from one composed of textile material saturated or impregnated with the liquid known as "collodion."

Having thus described my invention, what I claim is—

1. The method herein described of making and attaching button-hole sections to celluloid articles, which consists in uniting by heat and pressure to the opposite surfaces of a flexible and elastic membrane sheets of celluloid which entirely cover the membrane, and cementing said celluloid sheets to the celluloid article around an opening therein, substantially as set forth.

2. The method herein described of making and attaching button-hole sections to celluloid articles, which consists in cementing to the opposite surfaces of a flexible membrane sheets of celluloid, of dimensions greater than the membrane, to project beyond the edges of the latter, and cementing such projecting edges of the celluloid sheets to the celluloid article around an opening therein, substantially as set forth.

3. The method herein described of making and attaching button-hole sections to celluloid articles, which consists in preparing a section of elastic-rubber tissue, cementing to the opposite surfaces of such section sheets of celluloid, and cementing the latter to the celluloid collar around an opening therein, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH R. FRANCE.

Witnesses:
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