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BUTTON SEWING AND SEWING IMPLEMENT

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Fig. 1



Fig. 2



Fig. 3

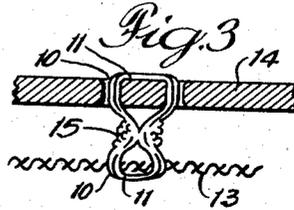


Fig. 4

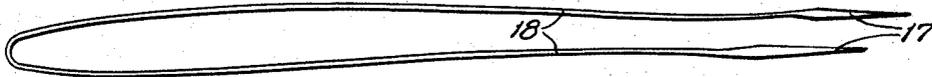


Fig. 5

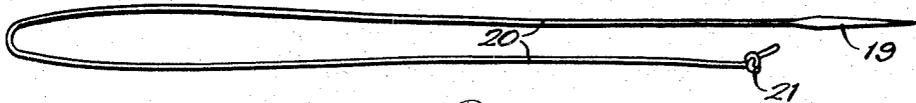


Fig. 6

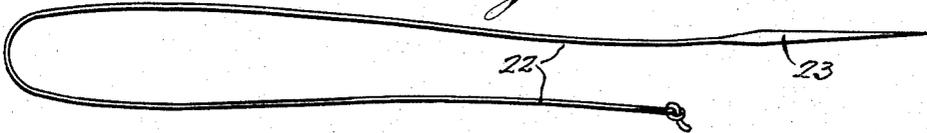


Fig. 7



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BUTTON SEWING AND SEWING IMPLEMENT

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4 Claims. (Cl. 223—102)

This invention relates to button sewing and sewing implement, and more particularly to a sewing implement for sewing buttons upon fabric, mending, and for sewing other objects, the implement being of a disposable nature.

The task of sewing a button upon a garment, particularly when there is a single button to be attached to the garment, is an onerous and unpleasant one and one which is often avoided and delayed because of the time-consuming and tedious operation involved in the threading of the needle, tying, knotting, sewing the button in place, severing the thread and usually knotting the thread before or after severing. The single operation of threading the needle is often very tedious, because the end of the textile thread curls out of line or bifurcates, and it is very difficult to get the thread into the eye of the needle. In the sewing operation, the textile thread is carried by the enlarged eye of the needle and bears the brunt of the abrasion or friction when the needle passes through the material, this operation often leading to a weakening of the thread and sometimes, when the material is tough material, to a breaking of the thread. A hazardous part of the operation is the needle itself, which is sharp and dangerous and which, after the sewing operation, has to be placed in a safe position. It cannot be thrown away even if the cost were little, because the needle would form a dangerous article in discarded rubbish. Even if the rubbish were burned, the needle would remain as a source of danger. As a result, needles are not discarded after the sewing operation, and must be placed in boxes or needle cushions or other safe points of storage.

If it were possible to provide a sewing implement which could be effectively used for sewing on a button and the unused portion of the implement discarded and rendered harmless in the burning of trash, it is believed that the foregoing problem could be solved and time and tedious labor saved. If it were possible to select from a packet containing threaded needles of a disposable type, a thread matching the cloth on which the button is to be sewed, and the button sewed on in a minimum of time, the point of the implement then being discarded for burning, the task of keeping buttons on garments would not be delayed or postponed, as is common.

An object of the present invention is to provide a method and means for accomplishing the above desired result, permitting a button to be quickly secured in position and the surplus portion of the implement employed then destroyed. A further object is to provide an implement for sewing on buttons, and the like, in which the thread portion is protected within the needle and is subjected to a minimum of friction in the sewing operation, particularly near the point where the thread joins the needle. A still further object is to provide a unitary needle and thread structure facilitating the button attaching operation and, because of the plastic character of the thread, locking the thread ends, after severing in fixed position. Yet a further object is to provide a button-sewing implement in which a plastic thread is

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employed and which, upon the completion of the sewing and the severing operation, tends to fuse the adjacent threads into a firmly-locked position. Still another object is to provide a composite thread and needle structure in which textile thread is united with plastic points which are thermoplastic and disposable, the plastic point protecting the thread and being discarded after severance. Other specific objects and advantages will appear as the specification proceeds.

The invention is shown, in illustrative embodiments, by the accompanying drawing, in which—

Figure 1 is a perspective view of a needle and thread structure embodying my invention; Fig. 2, a sectional view showing a button attached to fabric through the use of the needle and thread structure shown in Fig. 1; Fig. 3, a broken enlarged sectional view similar to Fig. 2 but showing the sewing operation completed and the surplus needle and thread portion cut away, the threads being fused; Fig. 4, a plan view of a modified form of the invention in which the needle points and thread body are integral and formed from a thermoplastic resin; Fig. 5, a plan view of a modified form of the invention in which a single point is employed and the end of the needle is knotted; Fig. 6, a plan view of a modified form of the invention in which the thread is formed of textile which is embedded within a plastic needle; and Fig. 7, an enlarged part-sectional view of the structure shown in Fig. 6.

In the illustration given in Figs. 1 to 3, inclusive, 10 and 11 designate threads formed of thermoplastic resin, or the like, the threads being fused at their ends to form sharp needles or points 12.

Any suitable material may be employed for the forming of the needle and thread structure. The plastic ethylene glycol terephthalate, because of its metal-like resiliency, is very satisfactory. The small diameter threads 10 and 11 are flexible, so that they function effectively in the sewing of the button, while at the same time the fused points 12 are sharp and have a rigidity which is effective for the passing of the needles through fabric, etc. Nylon, or any long-chain synthetic polymeric amide which has recurring amide groups as an integral part of the main polymer chain, and which is capable of being formed into a filament in which the structural elements are oriented in the direction of the axis, forms a highly satisfactory needle and thread product. The nylon threads can be of very small diameter to give the desired flexibility while at the same time the points 12, upon swaging, become extremely rigid and sharp. While in the illustration given, the filaments 10 and 11 are shown of substantial thickness or diameter, it will be understood that the size of the filaments can be extremely small in cross section so as to give great flexibility and, since nylon and various plastics have great strength, small cross-sectional dimensions are desired.

In addition to employing plastics having the desired rigidity for the points thereof, it will be understood that various means may be employed to increase the rigidity of the point portion of a selected plastic, as, for example, fusing with the plastic a sheath of a more rigid plastic, embedding in the plastic point rigid particles, compacting the point as by swaging, etc.

The needle points of the implement should be quite small for passing through the holes or points of the button. For most purposes, the points should not have a diameter greater than one-eighth of an inch so that after passing through the holes of the button they may be readily extended through the fabric. There are, of course, large buttons of unusual size for which larger needles may be used. An ordinary button has holes therethrough having a diameter varying between one-eighth to one-sixteenth of an inch, and I prefer to em-

ploy needles which do not substantially exceed one-eighth of an inch in diameter or width.

It will be understood that the rigidity of the needle point must be greater for the sewing of certain fabrics than for others, and for some loosely-woven fabrics the point can be considerably less rigid, and because of this difference in use, practically all filament plastics can be employed. Even plastics such as polyethylene, which tend to elongate under substantial stress, are useful for some sewing operations and, in fact, have definite advantages in that after the sewing and knotting operation, the threads tend to flow slightly, forming constrictions and enlargements which bring about a firm interlock which prevents the thread from coming apart during the manipulation of a button on the garment in use.

Other plastics which may be mentioned are vinyl chloride, vinyl chloride-acetate, polyvinyl chloride, copolymers of polyvinylidene chloride and vinyl chloride, cellulose acetate, propionate and butyrate, acetate copolymers, rubber hydrochloride, polyamides, and, as stated above, modifications of these and other resins as are well known in the art.

The thermoplastic resins have a further advantage in that where the threads overlap at the top of the button, they may be fused by the application of an iron or heated instrument and, in fact, during the use of the garment, the repeated ironing tends to increase the interlock at the points where threads overlap. It will be noted that the fusion of any of the threads, while tending to stiffen the filament at such points, does not interfere with the high flexibility of the inner portions of the filaments which form a flexing connecting neck between the button and the fabric.

The sewing implement, comprising a thread portion and a point portion, may have a single filament or thread or any number of filaments united or fused at their ends to form points, and the implement may consist of a single point with a thread extending therefrom or it may have two points, as illustrated in Figs. 1 to 3, inclusive.

In the illustration set out in Figs. 2 and 3, the fabric is designated by the numeral 13 and a button is designated by the numeral 14. The button may have two openings or four openings or any desired number of openings, and the button may be secured to the fabric 13 by using the implement in the same way as when an ordinary thread and needle are employed. Where the filament has two needle points, as illustrated in Fig. 1, the sewing operation is facilitated by passing the points through button openings and thence through the fabric and then upwardly through the fabric below the button, the threads then being wrapped around the neck of the connecting filaments to form a bundle 15, as illustrated in Figs. 2 and 3. The points then facilitate the tying of the threads to form a knot, and the filaments may then be cut away at the point 16, as designated in Fig. 2. Fusion or interlocking of the filaments is indicated in the enlarged view shown in Fig. 3.

Unlike a knitting pin, which has a rounded point, the needle of the present invention has a narrow tapered point enabling it to pass readily through fabric and material which is to be sewed or to which a button is to be attached. While not necessarily as rigid as steel, the needle should have a rigidity approaching that of metal, at least to the extent that it is fabric-piercing.

In the illustration given in Fig. 4, the points 17 are integrally formed with a plastic thread body 18 constituting a single filament. As already indicated, this filament may be extremely small in cross section. The drawing of the points 17 through the fabric forms enlarge-

ments which free the filament which is of small cross section from abrasion or severe friction as the material is drawn through the fabric, etc.

In the modification illustrated in Fig. 5, there is a single point 19 connected to one end of the filament 20 and the free end of the filament 20 is provided with a knot 21.

In the modification shown in Fig. 6, the filament 22 is formed of textile or other highly flexible fibrous material and the end of the textile thread is embedded within the rear portion of the resin body forming the needle 23, as illustrated best in Fig. 7. With this structure, the woven fibers of the textile thread 22 are protected during the sewing operation by the enlarged rear portion of the needle 23 so that after the needle has passed through the fabric, there is a minimum of abrasion of the textile thread.

In all of the operations described, the needle portion of the implement, together with any unused portion of the thread, is cut away and thrown into the wastebasket and the discarded material is burned along with other trash to form melted, non-sharpened bodies which provide no hazard. As stated above, for most fabrics, plastic points, unmodified except by molding or swaging, have sufficient rigidity for the sewing operation described.

While, in the foregoing specification, I have set forth specific structures in considerable detail for the purpose of illustrating embodiments of the invention, it will be understood that such details of structure may be varied widely by those skilled in the art without departing from the spirit of my invention.

I claim:

1. A sewing implement, comprising a thermoplastic resin needle having a substantially rigid sharp end and, merging with the end of said needle opposite said sharp end, an integral thermoplastic resin thread body of reduced diameter which is flexible for use in sewing and which, when wound upon itself under tension, tends to form interlocking constrictions and enlargements.

2. The structure of claim 1, in which a plurality of separate integral threads of reduced diameter are merged with said needle.

3. A button sewing implement, comprising a thermoplastic resin needle having a substantially rigid sharp end and, merging with the end of said needle opposite said sharp end, an integral thermoplastic resin thread body of reduced diameter which is flexible and which, in a button sewing operation when the thread is drawn about itself under tension, tends to form constrictions and enlargements providing an interlock.

4. A sewing implement, comprising a thermoplastic resin needle having a fabric-piercing, substantially rigid point and having its opposite end merging along a smooth inclination with an integral thermoplastic resin thread body of reduced diameter which is flexible for use in sewing and for the knotting of the end thereof.

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