

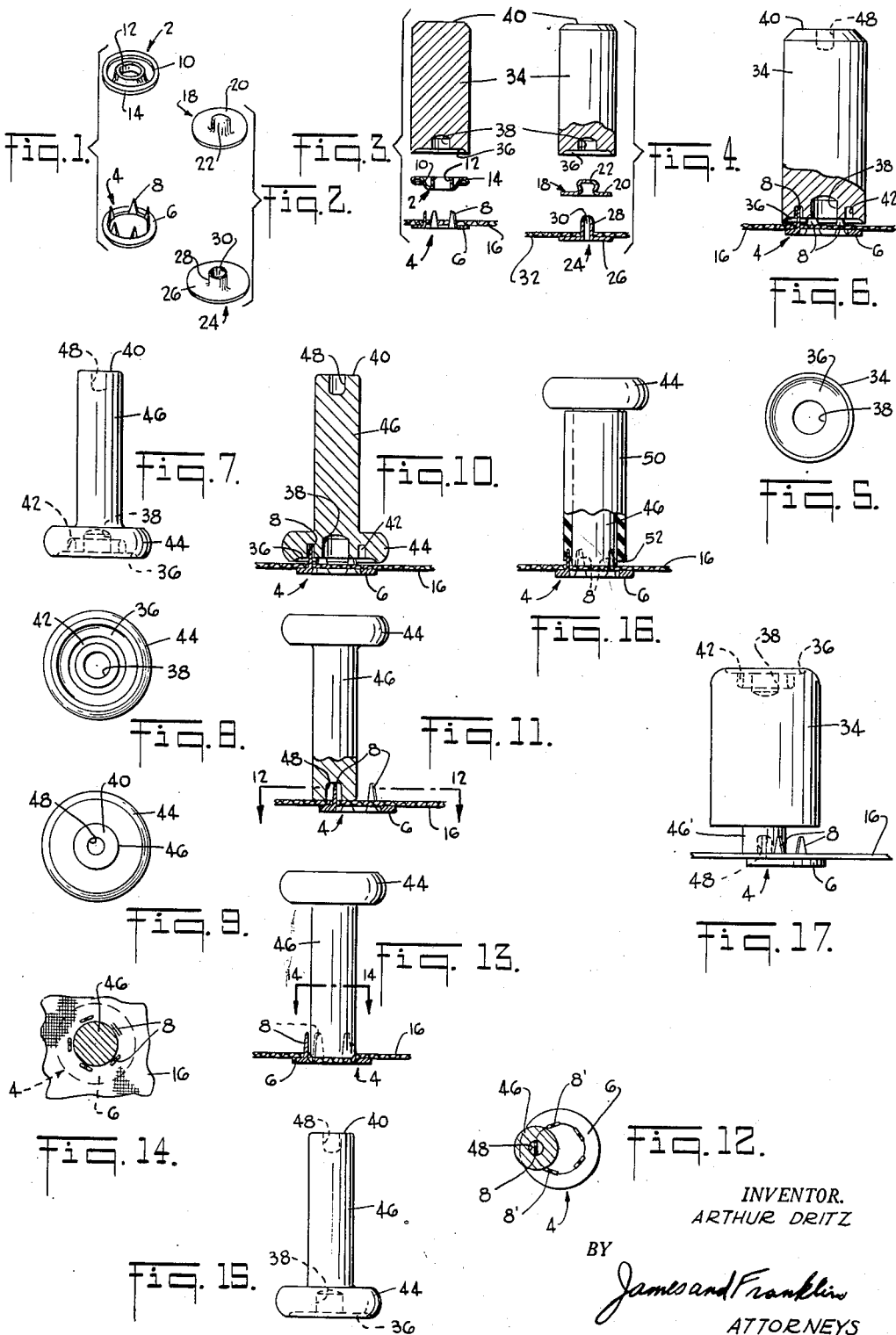
Oct. 28, 1952

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2,615,590

SNAP FASTENER ASSEMBLY TOOL WITH PENETRABLE SLEEVE

Filed Jan. 12, 1950



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2,615,590

SNAP FASTENER ASSEMBLY TOOL WITH
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Application January 12, 1950, Serial No. 138,160

1 Claim. (Cl. 218-20)

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The present invention relates to a simple tool particularly adapted for use in the assembly of conventional snap fasteners to one another and to the fabric with which they are used.

Snap fasteners of many specific designs are available commercially, and while the tool of the present invention is here disclosed with respect to one particular style of snap fastener, it will be apparent that it can easily be modified for use with snap fasteners having different size, shape and surface configuration merely by changing the size, shape or surface configuration of the tool accordingly.

Snap fasteners are composed of two mutually cooperable parts, each of which is adapted to be fastened to a piece of fabric and to be releasably securable to the other. For purposes of convenience these two snap fastener parts will hereinafter be designated "male" and "female" to correspond with the terminology commonly employed with the most prevalent style of snap fasteners. It is conventional that each of these parts be composed of two elements, one on one side of the fabric and one on the other, these two elements being securable to one another in a substantially non-separable manner so that the male and female snap fastener parts may be more or less permanently secured to the fabric in any appropriate position. For purposes of convenience these two elements will hereinafter be denominated "top element" and "bottom element," the top element generally being the one directed toward the other snap fastener part and the bottom element being positioned on the opposite side of the fabric from the top element.

The snap fastener assembly tool of the present invention constitutes a unitary structure which may be used to facilitate the various operations necessary for securing the elements of both male and female snap fastener parts to one another and to the fabric. Thus the tool is usable either in the factory in the course of quantity manufacturing or at home in the course of home dressmaking or repair, but it is designed primarily for use at home, since in the factory so many of the individual operations are performed daily that the use of special tools for each operation is economically practical. The home dressmaker, however, cannot employ automatic machinery for this purpose, nor can she use a multiplicity of tools from which a different one must be selected for each operation. Not only is the investment required in procuring a series of tools excessively large, but the delay and uncertainty involved in shifting from one tool to another and selecting

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the proper tool is a prime drawback. The well known lack of mechanical skill on the part of those who practice home dressmaking is another important factor militating against the use of separate tools in the home.

The tool of the present invention, here specifically illustrated in a number of alternative embodiments, is characterized by the fact that it can perform a variety of operations and hence is capable of being used in an efficient manner even by persons possessing a minimal amount of mechanical skill or manipulative ability. The tool is specially designed for the assembly of both male and female fastener parts and for the securing of those parts to the fabric with which they are to be associated. It is contemplated that these tools will be sold in a kit along with a supply of snap fastener elements of a size and shape corresponding to the tool, the kit thus presenting in a single package all of the equipment necessary to secure the snap fasteners to garments or other fabric articles. The use of snap fasteners by the home dressmaker has been hampered by the inability on the part of the average home dressmaker to perform the necessary operations in a neat and efficient manner with the tools which heretofore have been made available for that purpose. The present invention will go far toward increasing the frequency of use of snap fasteners by providing a single tool which is capable of performing all of the operations involved in snap fastener assembly by simplifying and clarifying the operations to be performed, and by ensuring that the operations can be performed without damage to or improper deformation of the snap fastener parts.

To the accomplishment of the above objects and such other objects as may hereafter appear the present invention relates to the construction of a snap fastener assembly tool as defined in the appended claim and as described in the specification taken together with the accompanying drawings in which

Fig. 1 is an exploded view of the elements of a conventional female snap fastener;

Fig. 2 is an exploded view of the elements of the conventional male snap fastener;

Fig. 3 is an exploded view in cross-section showing one embodiment of the present invention as it would be used in the assembling of the elements of a female snap fastener;

Fig. 4 is a view similar to Fig. 3 but only partially in cross-section and showing the tool used in the assembling of the elements of a male snap fastener;

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Fig. 5 is a bottom view on an enlarged scale of the tool of Fig. 3;

Fig. 6 is an elevational view partly in cross-section, of a tool similar to that of Fig. 3 but somewhat modified so as to facilitate the penetration of a fabric sheet by the upstanding prongs of the bottom elements of a female snap fastener part.

Fig. 7 is an elevational view of yet another embodiment of the tool of the present invention;

Fig. 8 is a bottom view of the tool of Fig. 7;

Fig. 9 is a top view of the tool of Fig. 7;

Fig. 10 is a cross-sectional view showing the tool of Fig. 7 in use in the same manner as the tool of Fig. 6;

Fig. 11 is an elevational view, partly in cross-section, showing another way in which the tool of Fig. 7 may be used;

Fig. 12 is a cross-sectional view taken along the line 12—12 of Fig. 11 but with the fabric sheet omitted;

Fig. 13 is an elevational view showing another method of use of the tool of Fig. 7;

Fig. 14 is a cross-sectional view taken along the line 14—14 of Fig. 13;

Fig. 15 is an elevational view of a modified form of the tool of Fig. 7;

Fig. 16 is a view similar to Fig. 13 but showing the tool modified by having a resilient sleeve therearound;

Fig. 17 is an elevational view of yet another embodiment of the present invention, the tool being used in a manner similar to the tool of Fig. 11.

In order to appreciate the capabilities and the constructional features of the tool of the present invention, the steps necessary for securing the snap fastener elements to one another and to the fabric will first be outlined, it being understood that the fastener elements here specifically described are merely typical, and that various types of fastener elements could be employed which might require slight design modifications in the tool without departing from the present invention.

The female snap fastener part, disclosed in Fig. 1, comprises a top element 2 and a bottom element 4, the bottom element being defined by a web 6 of metal on the inside of which a plurality of upstanding prongs 8 in the form of a ring are provided. The top element 2 is defined by an annular ring 10 of metal or the like having a resilient central opening 12 adapted to releasably engage the male snap fastener part, and by an intured rim 14 surrounding the ring 10 into which the upstanding prongs 8 of the bottom element 4 are adapted to be bent after those prongs 8 have been passed through a fabric sheet 16 at the place where the snap fastener part is to be positioned. Thus in assembling the female snap fastener part to the fabric 16 two operations are necessary, first the penetration of the fabric 16 by the prongs 8, and then the pressing together of the top and bottom elements 2 and 4 so that the prongs 8 are bent outwardly into the rim 14, thus securing the elements together and to the fabric 16.

The top element 18 of the male snap fastener is defined by a disc 20 of metal or the like the central portion of which is projected upwardly to form the button-like projection 22 which is adapted to be releasably received within the opening 12 of the top element 2 of the female snap fastener. The bottom element 24 of the male snap fastener is defined by a disc 26 of

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metal or the like provided centrally with an upward projection 28 having an opening 30 there-through, this projection 23 being adapted to be passed through the fabric sheet 32, to be received inside the button-like projection 22 on the top element 18, and to be bent outwardly within that button-like projection 22 so as to secure the elements 18 and 24 together and to the fabric sheet 32. Thus, in the assembly of the male snap fastener element two steps are necessary, first the penetration of the fabric 32 by the projection 28 on the bottom element 24 and then the securing together of the top and bottom elements 18 and 24 by the deformation of the projection 28 inside the projection 22.

Each of the above steps involve manipulative and operative techniques the difficulty of which varies with the type of fabric employed and the size and rigidity or deformability of the snap fastener elements themselves. The design of the tool of the present invention is adapted to facilitate all of these operations. In the description of the various tool embodiments hereinafter set forth in detail the same reference numerals will be used for those structural characteristics which are common to the various embodiments.

The tool illustrated in Figs. 3 and 4 is adapted solely for the assembly of the top and bottom elements of both the male and female snap fastener parts, but is not adapted to facilitate the penetration of the fabric sheets 16 or 30 by the bottom elements 4 or 24. It comprises a body 34 here shown as generally cylindrical in shape, one surface of that body being provided with a depression 36 which is substantially flat so as to conform in size and shape to the top elements 2 and 18 of the female and male snap fastener parts respectively. For any given snap fastener size these two elements 2 and 18 will be of approximately the same size and shape, and the tool will, of course, accommodate elements of snap fasteners of a smaller size within the depression 36, although without as much of a centering effect as if the elements are of a size exactly corresponding to the particular tool. Preferably centrally located in the depression 36 is the orifice 38 which is of a size and shape adapted to receive the button-like projection 22 of the top element 18 of a male snap fastener part. The body 34 is adapted to be driven in a direction perpendicular to the depression 36, and to that end it is provided with a substantially flat surface 40 opposite and parallel to the depression 36 against which pressure or impact may be directed, as by a press or a hammer.

The use of the tool in the assembly of the female snap fastener elements will in the main be apparent from an inspection of Figure 3. After the prongs 8 of the bottom element 4 of the female snap fastener part have penetrated fabric sheet 16 the top element 2 is placed thereover so that the tips of the prongs 8 are received between the body 10 and the bent-over rim 14. The tool is then placed on top of this assembly so that the top element 2 is received inside the depression 36, the sides of the depression serving to center the tool on the top element 2 and the bottom of the depression 36 engaging the upper surface of element 2. The tool is then forced downwardly, as by hitting the flat surface 40 with a hammer or the like, thus causing the prong tips 8 to be bent outwardly into the rim 14 and secure the top element 2 to the bottom element 4 and to the fabric sheet 16. The shape of the depression 36 ensures against undesired deformation of

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the top element 2. In this operation the orifice 38 plays no appreciable part.

In assembling the elements of the male snap fastener part as illustrated in Fig. 4 the upward projection 28 of the bottom element is first passed through a fabric sheet 32. The top element 18 is then placed thereon so that the upward projection 28 is received inside the button-like projection 22. The tool is then placed on top of the top element 18 so that the button-like projection 22 is received within the orifice 38, thus centering the tool on the snap fastener whether the snap fastener is of exactly the same size as the tool or not. The disc-like body 20 of the top element 18 engages with the surface of the depression 36. When the tool is then driven downwardly, as by the blow of the hammer on the flat surface 40, the projection 28 on the bottom element 24 is deformed inside the button-like projection 22 on the top element 18, thus securing the top element 18 to the bottom element 24 and to the fabric sheet 32, while the configuration of the depression 36 and orifice 38 ensure against undesired deformation of the top element 18 and particularly of the button-like projection 22, which must fit properly within the opening 12 in the female snap fastener part if the fastener is to operate properly.

The tool of Fig. 6 functions in the same manner as the tool of Figs. 3 and 4 in the assembly of the various snap fastener elements. However, the depression 36 is provided, surrounding the orifice 38, with a ring-shaped orifice 42 of a shape, width and depth such that the ring of prongs 8 on the bottom element 4 of the female snap fastener part are simultaneously receivable therein. Because of this construction the tool of Fig. 6 can be employed to facilitate simultaneous penetration of the fabric sheet 16 by the prongs 8 by placing the bottom element 4 under the fabric sheet 16, positioning the tool 34 above the fabric sheet 16 with its ring-shaped orifice 42 in registration with the ring of upstanding prongs 8, and then pressing the tool 34 downwardly, preferably manually, the prongs 8 moving into the orifice 42 and the fabric 16 being pushed down so that it is penetrated by the prongs 8. In this operation pressure is exerted by the tool 34 immediately inside and immediately outside of the ring of prongs 8, so that penetration is achieved in a neat and positive manner. It will be noted that, to complete the assembly of the female snap fastener part, the tool 34 need be lifted only enough to permit the top element 2 to be placed in position and then may be brought down on top of the element 2 without any change in orientation.

The tool of Figs. 7 through 14 represent a modification which is somewhat easier to manipulate and is capable of performing additional functions. Here the tool is defined by a head 44 and an elongated upward projection 46 therefrom, that projection 46 defining a narrow handle by means of which the tool may be manipulated. The bottom surface of the head 44 is provided with the depression 36, the orifice 38 and the ring-shaped orifice 42. The upwardly projecting handle 46 has a cross-sectional size and shape such that it can fit inside the ring of upstanding prongs 8 in the bottom element 4 of the female snap fastener part. Thus, as illustrated in Figs. 13 and 14, the upwardly projecting handle 46 can be employed to facilitate penetration of the fabric sheet 16 by placing the fabric sheet 16 above the bottom element 4, placing the tool above the fabric sheet 16 so that the handle pro-

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jection 46 is disposed above but inside the ring of prongs 8, and then pressing downwardly with the tool as shown in Figs. 13 and 14, thus firmly forcing that portion of the fabric sheet 16 disposed inside the prong ring 8 downwardly. If this does not cause proper penetration of the sheet 16 by the prongs 8, the portion of the fabric sheet 16 just outside the ring can be pressed down by the fingers.

Since the tool is also provided with the ring-shaped orifice 42, it may be employed to facilitate penetration of the fabric sheet 16 by the prongs 8 in the manner illustrated in Fig. 10, which is basically similar to the operation disclosed in Fig. 6. This embodiment of the tool is used for assembly of the top and bottom elements in the same manner as the tool of Figs. 3 and 4.

It sometimes occurs, because of special stiffness of the fabric sheet 16, as when that sheet is composed of leather, that neither of the above described means for facilitating penetration of that sheet 16 by the prongs 8 will be effective, it being necessary instead that each prong be individually forced through the fabric sheet 16. To that end the tool is provided with an aperture 48, here shown in the flat surface 40 positioned parallel to the depression 36 at the top of the projecting handle 46, this aperture being of a size and shape adapted to freely receive an individual upstanding prong 8 therein. The use of this aperture is illustrated in Figs. 11 and 12. The fabric sheet 16 is placed above the bottom element 4 and the tool is held with the handle projection 46 directed downwardly and with the aperture 48 in registration with a given one of the prongs 8. The tool is then pushed downwardly, causing that prong 8 to enter into the aperture 48, the surface 40 surrounding the aperture 48 forcing the fabric sheet 16 down on all sides of the prong 8, the handle 46 passing between the prongs 8 adjacent to the prong 8 which is received with the aperture 48. This operation is repeated for each of the prongs. It has been found that the use of the aperture 48 is the most practical way of securing the bottom element 4 to a sheet of leather or the like.

The tool of Fig. 7 can therefore be used either to cause the prongs 8 to penetrate the fabric sheet 16 one by one, as in Figs. 11 and 12, or simultaneously as in Figs. 10, 13 and 14, and a choice of two methods of simultaneous penetration is presented.

The tool of Fig. 15 is similar to that of Figs. 7 through 14 except that it does not have the ring-shaped orifice 42. Thus in the tool of Fig. 15 the operation illustrated in Fig. 10 cannot be performed.

One drawback to the penetration operations both of Figs. 10 and 13 is that no downward pressure is applied to the fabric sheet 16 between the individual prongs 8. In order to eliminate this disadvantage the handle projection 46 may be surrounded by a sleeve 50 of penetrable resilient material such as rubber (see Fig. 16), the end surface 52 of that sleeve terminating short of the end surface 40 of the projection 46 by a distance less than the height of the prongs 8. Thus, when an operation similar to that of Figs. 13 and 14 is performed, the upwardly projecting tips of the prongs 8 will penetrate the end surface 52 of the sleeve 50, the unpenetrated portions of that surface passing between the prongs 8 and forcing the fabric down therebetween. The rubber sleeve 50 also constitutes a convenient non-slip grip for manipulating the tool.

It will be noted that the tool of Fig. 6 is, like the tool of Fig. 7, provided with an aperture 48 in the flat surface 40 thereof, so that the former can also be used as illustrated in Fig. 11.

The tool of Fig. 17 is similar to that of Fig. 6 except that it is provided, at its top surface, with an upward projection 46' having an aperture 48 therein, the projection 46' being too short to serve as a handle for the tool but being usable in the manner illustrated in Fig. 13, and the aperture 48 being usable as illustrated in Fig. 11.

The use of the various tools here disclosed has been fully explained above. It will be apparent that the tools in their various illustrated embodiments are capable of various uses in conjunction with the assembly of snap fastener parts and the securing of those parts to fabric sheets, the various constructions disclosed each having different advantages and capabilities when compared with the others. All, however, are characterized by a simplicity of construction and by a facility of use which emphasizes their desirability. A single tool can be employed for all of the operations necessary in the assembly of snap fasteners and may in some cases be used in different manners to obtain the same end result so as to accommodate manipulation to the particular type of fabric to which the snap fasteners are to be secured.

It will be further apparent that many variations may be made in the size, shape and configuration of the tools, and in the existence, arrangement and orientation of the various operative depressions, orifices and apertures, without departing from the spirit of the invention as defined in the following claim.

I claim:

A snap fastener assembly tool comprising a head with a narrower handle extending from one face of said head, another face of said head having a depressed shaped surface of a given outer configuration for acting on and supporting the top elements of male and female snap fasteners of corresponding outer configuration, the outer configuration of said handle at its free end being smaller in all directions than the outer configuration of said depressed surface, thus adapting it to fit inside the ring of upstanding prongs of a correspondingly sized bottom element of a snap fastener, and a sleeve of penetrable resilient material enveloping said handle and abutable against said head at one end edge and having an end edge terminating short of but close to the front end of said handle, the tips of said prongs thus penetrating said end edge of said sleeve when said handle is fitted inside the ring of prongs.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
430,405	Smith	June 17, 1890
667,554	Murphy	Feb. 5, 1901
1,462,463	Foss	July 17, 1923
2,007,067	Yarger	July 2, 1935
2,413,702	Fenton	Jan. 7, 1947
2,422,405	Gookin	June 7, 1947