March 31, 1942. A. B. RHOADS ET AL 2,277,832

SLIDE FASTENED TROUSER FLY CONSTRUCTION

Filed July 3, 1940 2 Sheets-Sheet 1

Fig. 1.

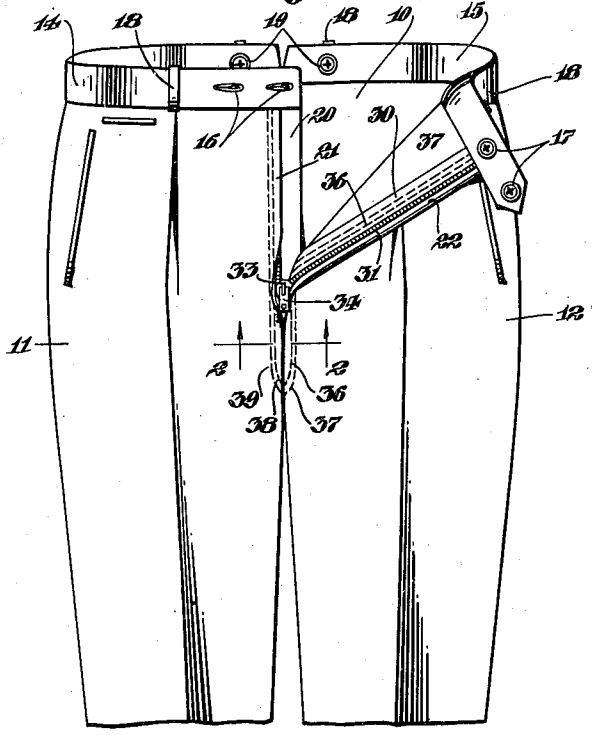

Fig. 2.

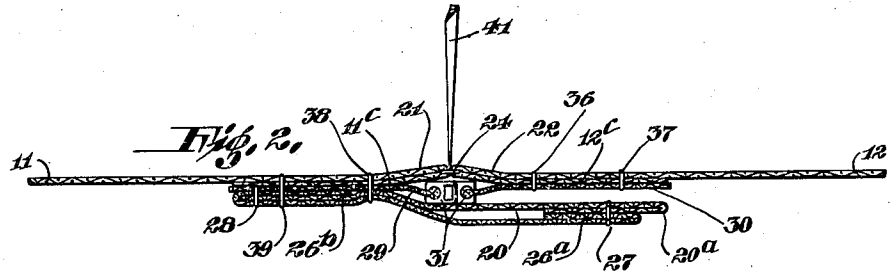

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Fig. 4.

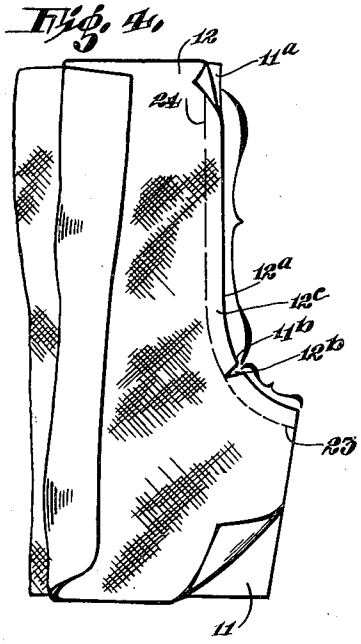


Fig. 3.

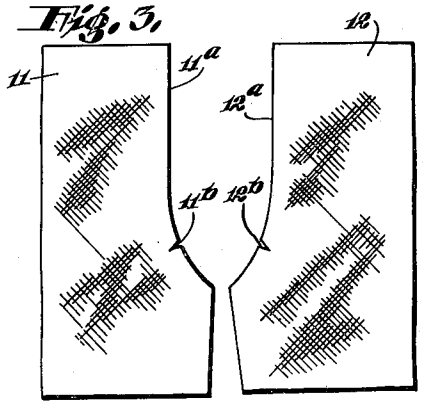


Fig. 5.

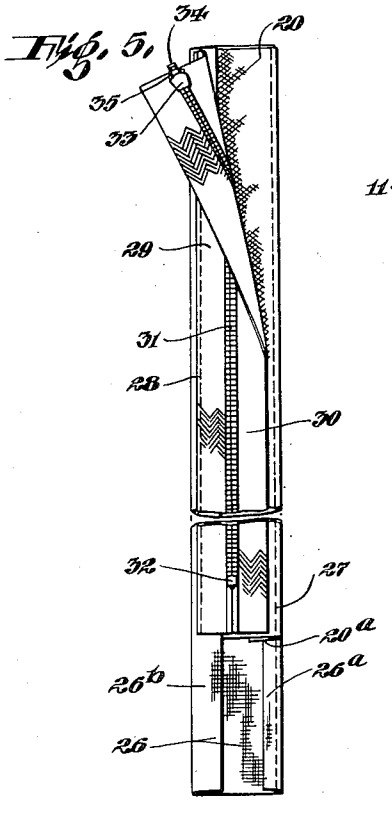
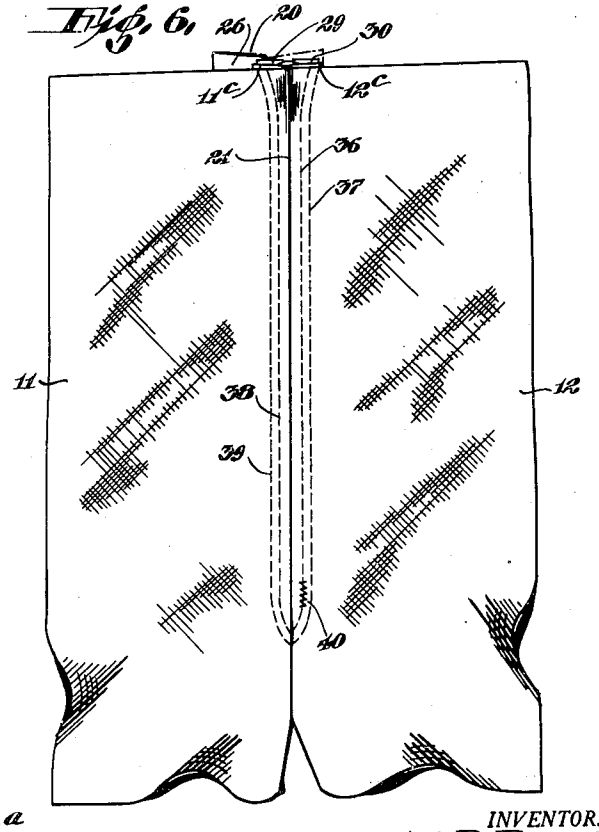


Fig. 6.



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SLIDE FASTENED TROUSER FLY CONSTRUCTION

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Application July 3, 1940, Serial No. 343,704

3 Claims. (Cl. 2—234)

This invention relates to trouser garments and, in particular, to the provision of new and improved slide fastened trouser fly constructions.

It is an object of this invention to provide in trouser garments a new and improved slide fastened trouser fly construction embodying a slide fastener which is completely concentric with respect to the garment front and which fly construction is particularly adapted to the use of regular slide fasteners comprising complementary slide fastener stringers supporting a longitudinally movable slider, which stringers are connected at their lower ends by a conventional bottom stop or bottom end fitting, obviating the necessity for use of cross tapes or tension reinforcing strips heretofore found necessary in trouser fly construction.

It is a further object of this invention to provide a trouser fly construction wherein the fastener covering flaps, formed by the adjacent trouser front panel edges, are in abutting relationship approximately centrally of the slide fastener, instead of overlapped, thus producing a thin, flat and neat trouser fly construction.

It is a further object of this invention to provide a new and improved method of trouser fly construction providing utmost ease and convenience of assembly.

It is a further object of this invention to provide such a method wherein the trouser front panels are temporarily connected by basting prior to and independently of attachment of the fly assembly to the garment front panels, and whereby the location of the trouser front panels with respect to one another is fixed independently of the fly assembly attaching operations, the construction of the fly comprising a distinct and independent part of the method.

These and other objects and advantages of the invention will appear from the following description taken in conjunction with the accompanying drawings which form a part thereof, and will be pointed out in the appended claims.

In the drawings:

Fig. 1 is a fragmentary view, in perspective, of a trouser garment embodying a fly construction according to this invention, with the fly partly open;

Fig. 2 is a section taken substantially on the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary view of notched right and left trouser front panels illustrating the first step of the method of this invention;

Fig. 4 is a view similar to Fig. 3, but showing alignment of the panels of Fig. 3, by the notches provided therein, and the connection of the inner edges of the panels permanently, by stitching, below the notches and temporarily, by basting, above the notches;

Fig. 5 is a view, in perspective, of the fly assembly utilized in the method of this invention; and

Fig. 6 is a view illustrating the attachment of the fly assembly of Fig. 5 to the connected trouser front panels illustrated in Fig. 4.

In trouser fly constructions of the prior art, there was substantial overlapping of the edges of the trouser front panels in order to provide a flap overlying and covering the slide fastener in the fly, which slide fastener was generally arranged on a curved line. The necessity for padding or otherwise reinforcing the relatively wide flap overlying and covering the slide fastener was occasioned by the need for preventing "embossing" which occurs upon pressing of the overlying flap of the trouser fly down upon the underlying fastener. The cost of the garment was substantially increased by this necessity for padding or lining this flap because of the high cost of materials suitable for use in reinforcing the flap and also due to the substantial amount of highly skilled labor necessary to install this reinforcement or lining.

Furthermore, in forming these prior art constructions, the stringers of the fastener were generally independently applied each to one of the trouser front panels and a cross tape, tension member, or strengthening tape was used, adjacent the lower end of the fastener, to connect the sides and/or fastener stringers together and prevent damage to the fly construction.

The independent application of the separate stringers of the fastener, of course, required a high degree of skill in locating these members in such manner that, when the trouser front panels were thereafter connected, the stringers would be in proper alignment for proper meshing and unmeshing of the interlocking fastener members of the stringers in the finished garment without the occurrence of wrinkling or puckering of the trouser fly portion. Furthermore, the separate application of the stringers to the garment, of necessity, required an extremely time-consuming, tedious, and inconvenient operation, namely, the application of the fastener slider to the lower ends of the attached stringer tapes which were threaded therethrough.

According to the principles of this invention, all of the above disadvantages are totally obviated, in addition to the simplification of the trou-

ser fly construction, by elimination therefrom of one of the previously necessary fly-pieces.

According to this invention, the fly opening and the slide fastener are entirely concentric with respect to the garment and the trouser front panels, the edges of which meet in abutting relationship substantially centrally of the slide fastener which fastener is disposed on a straight line rather than on a curved line, as in prior art constructions. As the wide overlapping flap is eliminated, there is no necessity for the above-described padding or lining due to the relative narrowness of the free abutting flaps which cover the straight line slide fastener.

The above improved construction is achieved as follows:

The left and right trouser front panels at the fly portion are provided at their inner edges with aligning indicia, such as notches, and these inner edges are connected together, permanently throughout a part of their length by stitching, and temporarily throughout the remainder of their length by basting.

Independently of this attachment of the left and right trouser front panels, a fly assembly is prepared, which consists of a suitably lined or reinforced fly-piece of garment material, to which one stringer of the slide fastener is secured by stitching. The slide fastener is preferably of the regular type provided with a slider and having a conventional bottom stop permanently connecting the lower ends of the stringer tapes.

After the left and right trouser front panels have been connected, as above described, the fly assembly is installed by securing the free fastener stringer tape to one of the trouser front panels by stitching (preferably double row) extending downwardly from the top edge of the panel at one side of the basting, similar stitching extending upwardly at the other side of the basting to secure the other stringer tape and attached lined fly-piece to the other trouser front panel. The attachment of the left and right trouser front panels, prior to attachment of the fly assembly, absolutely insures proper location of all parts of the fly portion of the garment and complete coverage of the fastener by the centrally abutting panel edges in the finished garment.

Following the above-described attachment of the fly assembly to the garment, the waistband of the garment may be secured to the front panel thereof and the basting thereafter ripped, as shown in Fig. 2, to complete the garment. As an alternative, however, the severing or ripping of the basting, illustrated in Fig. 2, may be accomplished prior to attachment of the garment waistband, if desired.

Referring to the drawings in detail, the illustrative trouser garment shown in Figs. 1 and 2 incorporates a fly construction according to this invention. The garment body comprises back panels forming the back 10 of the garment, a right trouser front panel 11, and a left trouser front panel 12, the upper edges of the panels being provided with a conventional waistband construction comprising the waistband 14 of trouser material with suitable waistband lining 15.

Suitable means such as buttonholes 16 and complementary buttons 17 are provided for connecting the ends of the waistband together, and means such as belt loops 18 and/or suspender buttons 19 may be provided for support of the garment, by the waistband, about the waist of the wearer. The above-described structure is conventional, the principles of this invention being applied to the fly portion of the garment.

In the fly construction of the garment, a single fly or fly-piece 20 underlies the fly opening. The edges of the right and left front panels 11 and 12 adjacent the fly opening are turned over inwardly upon themselves to form narrow pleats or flaps 21 and 22 respectively, which are adapted for substantial abutting relationship to define the edges of the fly opening which overlies the shield or fly-piece 20. One stringer tape of the slide fastener is secured between the shield or fly-piece 20 and the right trouser front panel 11 and the other stringer tape of the slide fastener is stitched directly to the inner side of the left trouser front panel 12 adjacent the front opening, as hereinafter described.

Due to the narrowness of the abutting pleats or flaps 21 and 22, there is no necessity for padding or reinforcing these flaps or pleats to prevent "embossing" when the trouser garment is pressed. The elimination of this hitherto indispensable padding or reinforcement makes possible the achievement of a thinner trouser fly construction than was heretofore possible. The thinness of this trouser fly construction is substantially enhanced by the use of a single fly-piece or shield 20 instead of using two such fly-pieces which was formerly common practice.

The abutting edges of the pleats or flaps 21 and 22 are straight and the underlying slide fastener is likewise disposed on a straight line. This straight line arrangement of the slide fastener achieves the utmost efficiency in operation of the fastener because a slide fastener operates more easily and efficiently when straight than when disposed on a curved line.

The sequence of the main operations necessary for construction of the trouser fly construction illustrated in Fig. 1 is shown, respectively, in Figs. 3, 4, 5, 6 and 2.

In beginning to assemble the trouser fly construction, a right front panel 11 and left front panel 12 having complementary, similar edges 11*a* and 12*a* adjacent the fly-forming portion are provided with notches 11*b* and 12*b* respectively. The right and left trouser front panels 11 and 12 are then superposed one on the other, as shown in Fig. 4, with the edges 11*a* and 12*a* aligned and with the notches 11*b* and 12*b* also in alignment. The curved parts of the edge portions 11*c* and 12*c* below the notches 11*b* and 12*b* which are to be disposed below the fastener in the finished fly, are then permanently secured together by permanent stitching 23, while the straight parts of the edge portions above the notches 11*b* and 12*b* are temporarily secured together by basting 24.

The above referred to edge portions 11*c* and 12*c*, which are between the basting 24 and the edges 11*a* and 12*a* respectively, are then turned over inwardly upon the panels 11 and 12, as shown in Fig. 2.

Independently of the above connection of the fly-forming portions of the right and left trouser front panels 11 and 12, the fly assembly, shown in Fig. 5, is formed. This fly assembly includes the above-described fly-piece 20 which is preferably of trouser material in the form of a longitudinal strip.

The left lateral edge portion of this fly-piece 20 is folded over backwardly upon itself at 20*a* (Fig. 5). The fly lining strip 26, which is preferably of bias cut material and which is preferably of greater width and length than the fly-piece 20, is folded over forwardly upon itself, at

each lateral edge, at 26a and 26b, respectively (Fig. 5). The backwardly folded over edge portion 20a of the fly-piece 20 is then placed over the left-hand forwardly folded over edge portion 26a of the fly lining 26 and a row of stitching 27 is applied to secure the left, or free, edge of the shield or fly-piece 20 to its lining 26.

The other, or right, edge portion of the fly-piece 20 is then aligned with the folded-over edge portion 26b of the lining 26 preferably by insertion between the forwardly folded-over right edge portion 26b of the lining and the lining proper 26. The righthand stringer tape 29 of the slide fastener is then placed over this turned-over edge portion 26b and the underlying edge of the fly-piece 20 and a row of stitching 28 is then applied to attach the righthand slide fastener stringer 29, the forwardly folded-over edge portion 26b, the underlying right edge portion of the fly-piece 20 and the fly lining proper 26 together. The fly construction is then in the form shown in Fig. 5 and it will be seen that, while the righthand slide fastener stringer tape 29 of the slide fastener is attached to the lined fly-piece, the left-hand fastener is attached to the lined fly-piece, the lefthand fastener stringer tape 30 is free of attachment to the fly-piece and its lining.

The slide fastener, as shown in Fig. 5, is of conventional form comprising right and left stringer tapes 29 and 30 respectively, each stringer tape being provided with a row of interlocking fastener members 31 on its inner, reinforced, edge. The stringer tapes are secured together below and adjacent the lower end of the rows of fastener members by a conventional bottom stop or bottom end fitting, such as the staple 32. A slider 33, supported on the interlocking fastener members 31, is movable longitudinally thereon for progressively engaging and disengaging the respective interlocking fastener members of the tapes progressively to connect and disconnect the inner edges of the tape and open and close the fastener. The slider is preferably provided with a pull tab 34 of known form to facilitate manual movement of the slider with respect to the stringer tapes, and conventional top stops 35 (Fig. 5) may be provided at the upper end of each row of interlocking fastener members 31 positively to limit upward movement of the slider 33, although these top stops may, if desired, be omitted.

As stated above, the formation of the fly assembly shown in Fig. 5 is totally independent of the connection of the trouser front panels 11 and 12, as shown in Fig. 4.

After the front panels 11 and 12 are connected by the stitching 23 and basting 24, as shown in Fig. 4, the front surfaces thereof are laid upon a flat surface and the edge portions 11c and 12c, which are then uppermost, are laid over upon the inner or back surface of the panels 11 and 12.

Thereafter, the connected panels 11 and 12 are turned over and the fly assembly is placed under the aforementioned basted seam with the fly-piece 20 folded back toward the inner or under surface of the right trouser front panel 11, as shown in Fig. 6, with the center of rows of interlocking fastener members 31 aligned with the basting 24. Next, the above-described free stringer tape 30 is secured directly to the left trouser front panel 12 by stitching (preferably a double row comprising the lines of stitches 36 and 37) extending downwardly from the upper edge of the left trouser front panel 12 to and beyond the bottom stop 32 which is disposed thereunder, the rows of stitching 36 and 37 terminating at the above-described stitching 23 which permanently secures the crotch portion of the panels 11 and 12 together, as above described.

Following this operation, the fly-piece 20 is flipped across the basting 24 to its normal position under the left trouser front panel 12, as shown in dotted lines in Fig. 6, and the right fastener stringer 29, with its attached fly-piece 20 and fly lining 26, is secured to the right trouser front panel 11 by stitching (preferably a double row, formed by the lines of stitching 38 and 39) extending upwardly from the termination of the above-described lines of stitching 36 and 37 to the top edge of the right trouser front panel 11.

After the double rows of stitching 36, 37 and 38, 39 are applied, the lower end portion of the lined fly-piece 20 is secured to the overlying portion of the left front panel 12 by bar-tacking 40 disposed closely adjacent the bottom stop 32 of the slide fastener and to the left thereof. This bar-tacking 40 extends through the overlapping plies of the left front panel 12, the left slide fastener stringer tape 30, the fly-piece 20 and fly-piece lining 26. This bar-tacking cooperates with the bottom stop 32 of the slide fastener totally to eliminate the necessity for cross tapes and/or tension members between the fly-piece and the trouser panels.

The first double row of stitching 36, 37 and the second double row of stitching 38, 39 are thus in parallelism, as shown in Fig. 6, and are spaced substantially equally at each side of the rows of interlocking fastener members 31 of the slide fastener. The distance between the inner rows of stitching 36 and 38 determines the width of the above-described narrow pleats or flaps 21 and 22 which overlie the fastener, and particularly the interlocking fastener members thereof, and as these narrow flaps have been secured together while being formed, there is no question whatsoever of spreading thereof upon the following operation which comprises ripping of the above-described basting 24 with a suitable tool such as knife 41. The ripping of the basting 24 completes the attachment of the fly assembly shown in Fig. 5 to the attached right and left trouser front panels 11 and 12.

From the above description, it will clearly appear that we have provided a new and improved slide fastened trouser fly construction wherein the slide fastener is completely concentric with respect to the fly construction and wherein the fly construction is completely concentric to the trouser garments. Likewise, it will clearly appear that the slide fastener is disposed along a straight line, which materially increases the efficiency thereof, that the slide fastener is of the regular type embodying a conventional bottom stop, obviating the necessity for the use of cross tapes and other tension members, and that the thickness of the fly construction is maintained at a minimum, as is the cost thereof.

It will likewise appear that we have provided a new and improved method of forming a slide fastened trouser fly construction wherein, by the use of basting, as above described, we are enabled to insure full coverage of the slide fastener by a pair of relatively narrow abutting flaps or pleats which require no lining or padding.

It is, of course, to be understood that the above description is merely illustrative and in nowise

limiting and that we desire to comprehend within our invention all modifications included within the scope of the appended claims.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent is:

1. In a method of forming a slide fastened trouser front fly construction, basting together complementary edge portions of a pair of complementary trouser front panels in superposed relation, folding over the basting, the edge portions therebeyond to form abutting folds, aligning a fly assembly including a slide fastener with said basting, stitching said fly assembly to said front panels and then ripping said basting to free the fly opening.

2. In a method of forming a slide fastened trouser front fly construction, basting together complementary edge portions of a pair of trouser front panels, folding over the basting, the edge portions of said trouser front panels outside, said basting to form abutting folds connected by said basting, placing over the folded over edge portions of said trouser front panels a fly assembly including a slide fastener aligned with said basting, securing said fly assembly to said front panels by stitching spaced from said basting at each side to form abutting complementary narrow obverse flaps overlying the slide fastener and temporarily connected by said basting, and ripping said basting to free the flaps and the fly opening.

3. In a method of forming a slide fastened trouser front fly construction, forming a pair of trouser front panels with complementary fly forming edge portions having the major part of their edges straight, basting together the straight part of the complementary edge portions of said trouser front panels in superposed relation, folding over the edge portions of said trouser front panels beyond said basting, placing over the folded over edge portions of said trouser front panels a fly assembly including a regular slide fastener with a bottom stop and aligned with said basting, securing said fly assembly to said front panels by double rows of stitching spaced from said basting at each side and joined below the bottom stop to form abutting narrow obverse flaps overlying the slide fastener and the bottom stop and temporarily connected by said basting, and ripping said basting to free narrow obverse flaps and the fly opening.

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