June 24, 1930. S. F. STEIN 1,766,697

CONSTRUCTION OF TROUSERS

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Fig. 1.

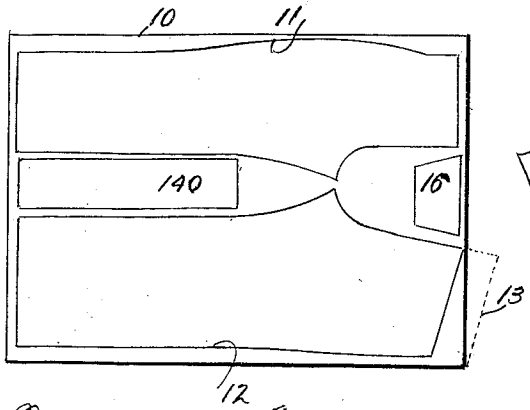


Fig. 2.

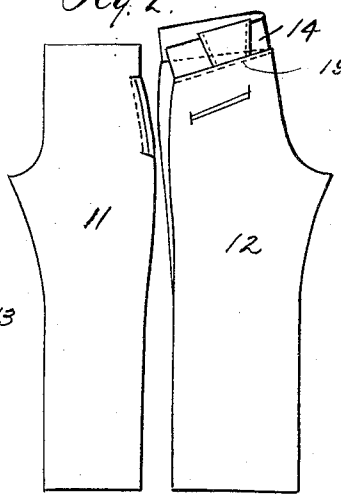


Fig. 3.

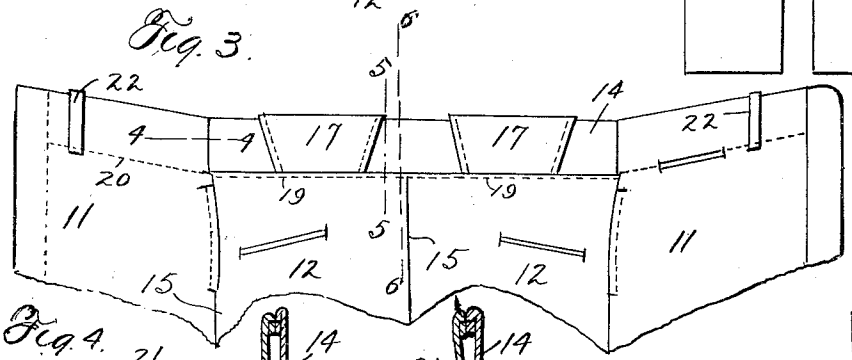


Fig. 4.

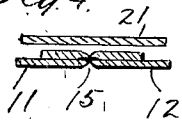


Fig. 5

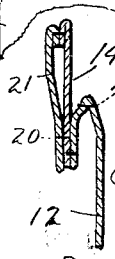


Fig. 6

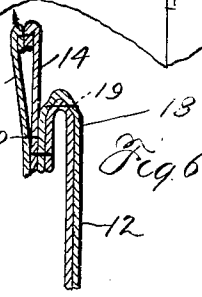


Fig. 8

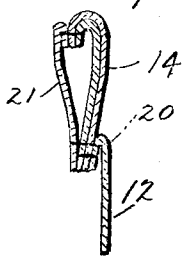
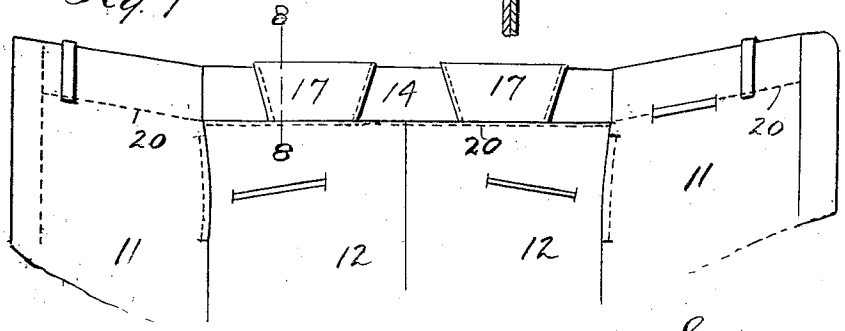


Fig. 7



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CONSTRUCTION OF TROUSERS

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Fig. 9

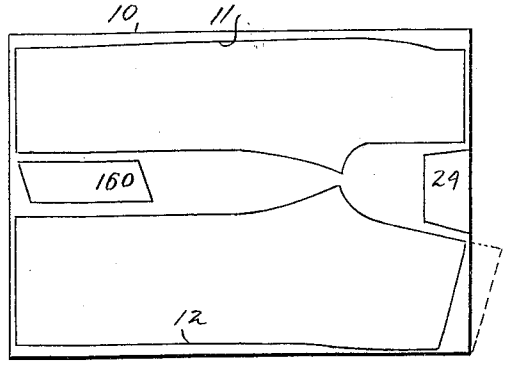


Fig. 10

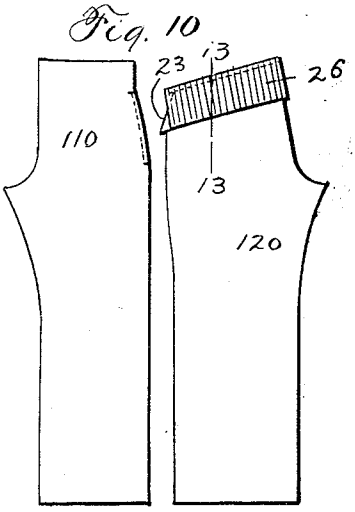


Fig. 11

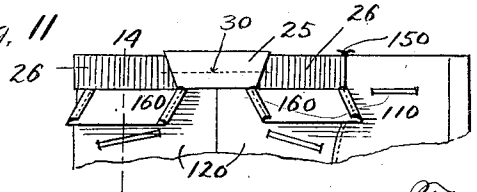


Fig. 12

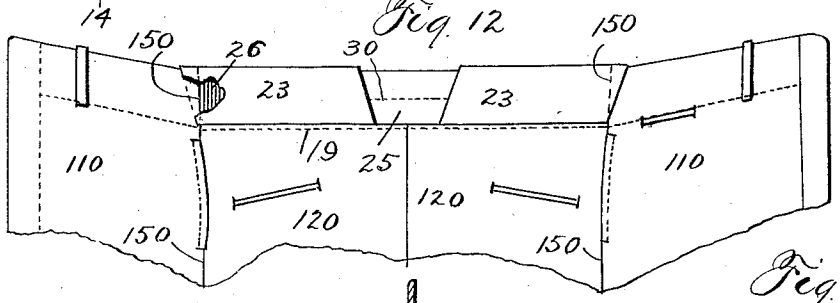


Fig. 13

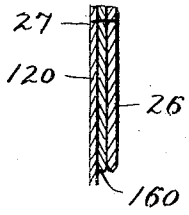


Fig. 14

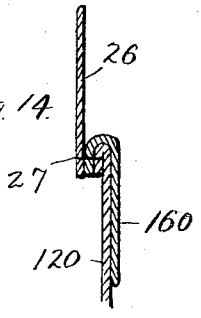


Fig. 15

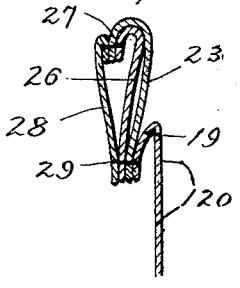
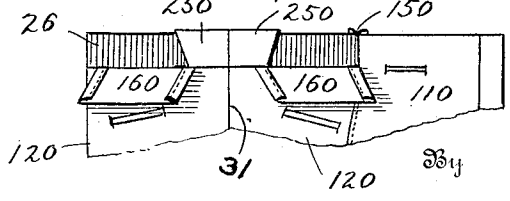


Fig. 16



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Patented June 24, 1930 1,766,697

UNITED STATES PATENT OFFICE

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CONSTRUCTION OF TROUSERS

Application filed March 12, 1925. Serial No. 14,957.

My invention concerns the manufacture of trousers, and, in particular involves the waist construction. It will conduce to an understanding of my invention and an appreciation of its practical importance, first to briefly explain what is the customary factory procedure in trousers making. A pair of trousers is composed of two pairs of front and back pieces, the two pairs being rights and lefts. The back part is longer from top to bottom than the front part, and it happens that the piece of goods is big enough for the front, but not for the back, the lack or shortage appearing at the waist portion of the back, and being taken care of by the application of the customary waist band in the form of a strip of cloth attached continuously to the top of fronts and backs of the two pairs that go to make up the trousers. This waist band strip is not applied and cannot be applied except in the last stages of the trousers' manufacture, due to the fact that the front and back must be sewed together before the band can be applied, and certain operations, such as the formation of the pockets, must be performed before the front and back can be sewed together. The sewing of the band to the front adds to the cost of manufacture, and besides this objection, there is danger, due to the number of hands that the garment must pass through under modern systems of clothing manufacture, and the number of separate pieces that must be handled, that strips of cloth of wrong color shades may be inadvertently used, with the result that defective garments are turned out that must be rejected and constitute a loss. By my invention saving in manufacture is effected, and the danger or likelihood of confusion of goods is eliminated, and a finished product is secured that is entirely satisfactory.

My invention consists in whatever is described by or is included in the terms or scope of the appended claims.

In the drawings:

Fig. 1 is a view showing a method of cutting a piece of goods to form the complementary front and back of trousers and pieces for waist band and tunnel loop which may be followed in the practice of my invention;

Fig. 2 is a view showing the complementary front and back parts ready to be sewed together, the waist band strip being continuous over the two back parts;

Fig. 3 is a view showing the garment made up, up to the point of joining at the crotch and inside seams;

Fig. 4 is a section on line 4—4 of Fig. 3;

Fig. 5 is a section on line 5—5 of Fig. 3;

Fig. 6 is a section on line 6—6 of Fig. 3;

Fig. 7 is a view similar to Fig. 3 of another embodiment of my invention;

Fig. 8 is a section on line 8—8 of Fig. 7;

Figs. 9 and 10, are, respectively, views similar to Figs. 1 and 2, and illustrate another embodiment of my invention;

Fig. 11 is side elevation of the waist portion of the trousers illustrating a procedure that may be followed in the practice of my invention;

Fig. 12 is a view of such embodiment of my invention similar to Fig. 3;

Fig. 13 is a section on the line 13—13 of Fig. 10;

Fig. 14 is a section on the line 14—14 of Fig. 11;

Fig. 15 is a vertical section through the finished waist portion of the garment passing through the tunnel at one of the back pieces.

Fig. 16 is a view similar to Fig. 11 showing the piece for filling the gap between the tunnels at the back of the garment made of two parts or halves.

Referring to Fig. 1, a piece of cloth, 10, is shown upon which are delineated the outline, 11, of the trousers front and the outline, 12, of the complementary back, these being arranged to make the best use of the piece, and it will be seen that while the piece is long enough to give the front length from bottom to waist, it is not enough for the full length of the back piece, 12, but there would be lacking the triangular piece, 13, indicated by dotted lines in Fig. 1, this being due to the necessity for the obliquity of the waist, or upper edge of the back. I take care of this situation by attaching to the top of the back part, 12, as shown in Fig. 2, a waist band forming strip, 14, so that in effect the back

part, 12, at the top, would be pieced out with the result that the back part from bottom to top has the length required for use with its complementary front part. When the two are sewed together at the side seam, 15 (see Fig. 3) it will be seen that the band strip, 14, at its end at such seam, abuts against the adjacent side edge of the front part, 11, and is joined thereto by the side seam, 15, best shown in Fig. 4, and that no waist band is required for the front part, 11, in the form of a separate piece, but the waist band portion thereof is integral with, or is a continuation of the front part, so that the labor and consequent additional expense of attaching a waist band to the front part is avoided. Inasmuch as the waist band strip, 14, is sewed to the back part before the two parts are in the hands of an operator in the early stages of work on the trousers, all danger of mismating the parts, so that bands of a wrong shade get into the garment is avoided, and since less close attention of the operators is required to the matter of properly matching the parts, their work is facilitated and production promoted.

Referring to Fig. 1 it will be seen that the waist band strip blank, 140, may economically be obtained from the piece of cloth between the front and back parts, 11 and 12, cut therefrom and that a blank, 16, for a trousers belt loop, 17, of the elongated or tunnel type may likewise be obtained.

It may be desirable, as shown best in Fig. 6, to provide a horizontal plait or fold, 18, at the junction at the bottom edge of the waist band to allow vertical stretch or play of the garment, at the waist, when the wearer bends over, and the return or recovery, after stretch is furthered by the stiffness that results from the double thickness of material at the seam that is folded or doubled over to provide the plait. To preserve or maintain the plait a line of stitching, 19, may be run through the folded edge. The plait at the ends may be caught in the side seams, but it is not caught in the center seam.

As shown in Figs. 7 and 8, this plait may be omitted, the construction in all other respects being like that shown in Fig. 3, except that the line of stitching, 20, that secures the curtain or lining, 21, also passes through the upper folded-over edge of the back part, 12.

It will be observed by reference to Figs. 3 and 7, that the waist band members of the back parts of the trousers extend in a straight line, and as the top edges of said back parts are normally cut on oblique lines that meet in a peak, it follows that with the waist band members extending in a straight line, that they exert a downward thrust on the tops of the back pieces and thus throw the fullness into the seat where it should be. This thrust of course comes from the fastening or anchorage of the opposite ends of the waist band members at the side seams.

Narrow belt loops, 22, are shown on the front part in Fig. 3 instead of the wider tunnel loops on the back part.

I have found it desirable that the seat, or back portion of trousers shall have a fullness that permits bending of the wearer without undue strain on the garment. I secure this fullness by the upward extension of the back due to the obliquity or upward inclination of their top edges from the side seams. The peaked or pointed appearance of the back of the garment which would result from this, might, on displaying the garment be objectionable, but that is overcome by the straight waist band that reaches between the side seams, and acts to thrust the peaked portion downward when the trousers are held at opposite sides by the hands in the act of exhibiting or displaying them.

The advantages which come from my invention are obtainable whether the front and back parts are cut from short pieces of cloth, or from full yardage of goods, all as will be appreciated by those skilled in the art.

Referring to Figs. 9 to 16 an embodiment of my invention is illustrated in which belt tunnels are most advantageously employed. The tunnels, 23, have their forward ends at the bottom corner to the side seam, 150, joining the front part, 110, and the back part, 120, and at the top carried beyond such side seam, so that as such forward ends are inclined, or oblique, they lap over the front part, 110. This results in several benefits. It enables the use of lining, or other different material beneath the tunnel, which at the forward end is sewed to the front part, 110, at the side seam, without such material being visible, for the overlapping portion of the tunnel completely conceals it. As the tunnel, at the top, crosses the side seam and is sewed to the joined portions of the front and back parts at the waist, a stout, strong construction results because strain that otherwise would fall on the seam stitching that might rip the seam, is taken by the tunnel.

As I prefer to make the tunnels of strips of substantial length, it will be seen that they, in effect constitute the waist band that is sewed to the tops of the back parts to compensate for the shortness of the latter under the conditions of my invention. To secure blanks of suitable length for the tunnels, the blanks, 160, may as shown in Fig. 9, be cut from the goods that lie between the leg portions of the back and front parts, but I, of course, do not limit myself to any particular way of obtaining these blanks. The smaller pieces obtainable as a blank, 24, (Fig. 9), may be used to piece out the space between the two tunnels at the back of the waist, should it be desired to have the garment at that point show the same kind of goods, the ends of such piece being

carried beneath and concealed by the tunnels, and being left unstitched if desired, so that, either as unnecessary or by preference there would be no obstruction to threading the belt beneath such piece instead of passing it over it.

A procedure that may be followed in assembling and sewing together the various parts is shown in Figs. 13 to 15. The tunnel blank, 160, and the strip, 26, of lining material are laid upon back part, 120, as shown in Fig. 13, the strip being laid in place starting with its end substantially at the side edge of the back, 120, and the tunnel is set back from such edge somewhat to prevent its forward end being caught in side seam, 150. These parts are then sewed together by a line of stitching, 27, at their top edges with the strip, 26, outermost. The strip, 26, is folded upward as shown in Fig. 14 and its end next to the front part, 110, is sewed thereto at the side seam, 150. And finally the curtain lining, 28, and the tunnel and piece, 25, being sewed together by a line of stitching, 29, the finished result is what it appears in Fig. 15. When the piece, 25, is used, it may as shown in Fig. 11, after being secured by the line of stitching, 27, be folded up against the strip, 26, and held in place by a central longitudinal line of stitching, 30. The latter, of course, would prevent the belt from being passed under said piece.

The piece, 25, may, if desired, as shown in Fig. 16, be made in halves, 250, and the two back parts may have the extensions sewed to their top edges separately, and then the two back parts joined at the back seam, 31, the halves of piece, 25, being joined at the same operation. The piece, 25, that fills the gap between the two tunnels at the back may be of any desired material.

By trousers, I mean bifurcated garments of every description to which my invention is applicable.

What I claim is:

1. Trousers composed of complementary pairs of front and back parts joined on the side by a seam that extends from the waist downward, one of said parts including an integral waist-forming portion, and the other part having a waist portion that is secured thereto and comprises a strip which constitutes a belt tunnel, said strip forming an extension to the top of the part to which it is secured, whereby the upper edges of said front and back parts are made to meet substantially at the same point at the top of said side seam.

2. Trousers composed of complementary pairs of front and back parts joined on the side by a seam that extends from the waist downward, one of said parts having an integral waist-forming portion, and the other part having a strip which is secured thereto and constitutes the outer wall of a belt tunnel, said strip forming an extension to the top of the part to which it is secured, the upper corner of the tunnel at the side seam being carried over the seam.

3. Trousers composed of complementary pairs of front and back parts joined on the side by a seam that extends from the waist downward, one of said parts having an integral waist-forming portion and the other part having a waist portion that comprises a strip which is secured thereto and constitutes the outer wall of a belt tunnel, said strip forming an extension to the part to which it is secured, the upper corner of the tunnel being carried over the side seam, and the lower corner of said tunnel terminating substantially at the side seam.

4. Trousers composed of complementary front and back parts joined on the side by a seam that extends from the waist downward, one of said parts having an integral waist-forming portion and the other part having a strip secured thereto which constitutes the outer wall of a belt tunnel, and a piece under said tunnel with one end extending vertically and is secured at the side seam, said strip forming an extension to the top of the part to which it is secured, whereby the upper edges of the said front and back parts are made to meet substantially at the same point at the top of said side seam.

5. Trousers composed of complementary front and back parts joined on the side by a seam that extends from the waist downward, one of said parts having an integral waist-forming portion and the other part having a strip secured thereto which constitutes the outer wall of a belt tunnel, and a piece under said tunnel with one end extending vertically and is secured at the side seam, said strip forming an extension to the top of the part to which is secured, whereby the upper edges of said front and back parts are made to meet substantially at the same point at the top of said side seam.

6. Trousers composed of complementary front and back parts joined on the side by a seam that extends from the waist downward, one of said parts having an integral waist-forming portion and a strip constituting the outer wall of a belt tunnel attached to the other part, and a piece under said tunnel secured at the side seam and its other end reaching rearward from the rear end of said tunnel, said strip forming an extension to the top of the part to which it is attached, whereby the upper edges of said front and back parts are made to meet substantially at the same point at the top of said side seam.

7. Trousers composed of complementary front and back parts joined on the side by a seam that extends from the waist downward, one of said parts having an integral waist-forming portion and a strip constituting the

outer wall of a belt tunnel secured to the other part and a piece under the belt tunnel with one end terminating at the side seam and concealed by said tunnel, and its other end reaching rearward from the rear end of said tunnel, said piece forming an extension to the part to which it is secured, whereby the upper edges of said front and back parts are made to meet substantially at the same point at the top of said side seam.

8. Trousers composed of complementary front parts and back parts joined on the side by a seam, the front parts having integral waist-forming portions and a member constituting a waist portion attached to the upper edge of the back part, said member forming an extension to the top of the part to which it is attached and made to aline substantially with the top edge of said front parts.

9. Trousers composed of complementary front parts and back parts joined on the side by a seam, the front parts having integral waist-forming portions and a member constituting a waist portion attached to the upper edge of the back part, said member forming an extension to the top of the part to which it is attached and made to aline substantially with the top edge of said front parts and secured to said integral waist-forming portions of said front parts.

10. Trousers composed of complementary front parts and back parts joined on the side by a seam that extends from the waist downward, the front part having an integral waist-forming portion and the other part having a waist portion that comprises a strip which constitutes a belt tunnel, said strip being sewed to only one of said parts and forming an extension to the top of the part to which it is sewed, the lower corner of said tunnel terminating substantially at the side seam.

11. A method of making trousers having complementary front parts and back parts which consists in forming the front parts with integral waist-forming portions and forming the back parts without waist-forming portions and attaching a waist-forming portion thereto to constitute an extension to the top of the part to which it is attached whereby the top edge of the back part is made to aline substantially with the top edge of the respective front part.

In testimony whereof I hereunto affix my signature.

SAMUEL F. STEIN.