Feb. 17, 1931. C. S. MACKENZIE 1,793,109

METHOD FOR SUPPORTING TROUSERS

Filed May 17, 1928

Fig. 1.

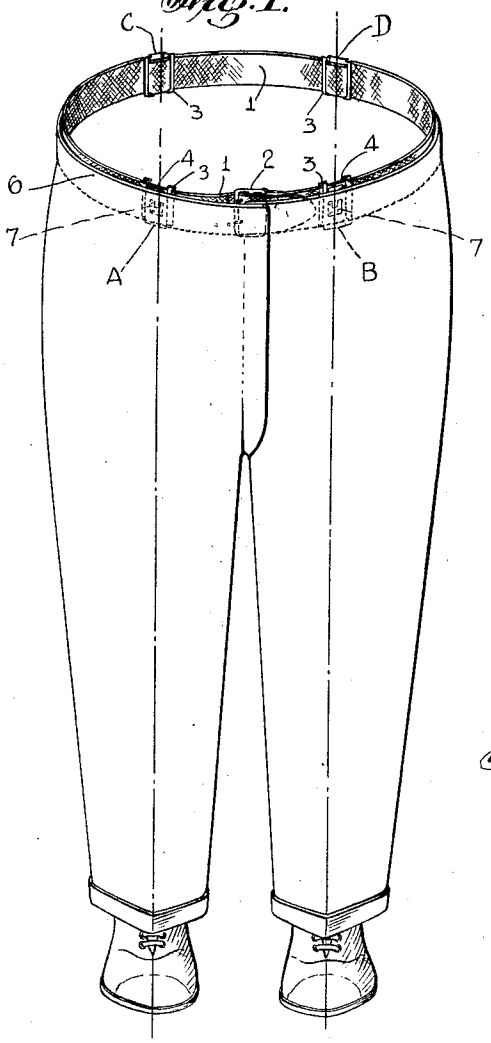


Fig. 3.

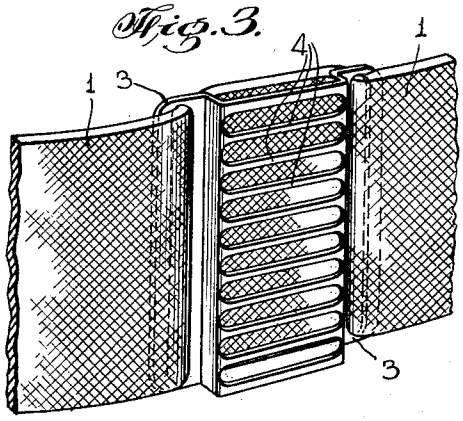


Fig. 6.

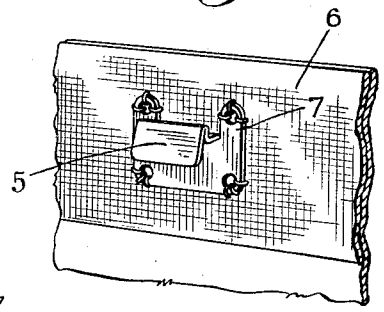


Fig. 4.

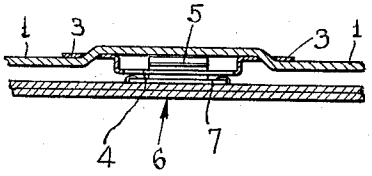
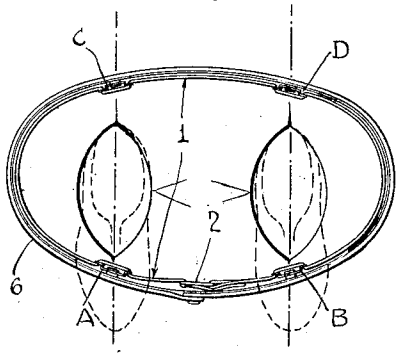


Fig. 2.



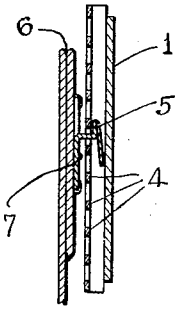


Fig. 5.

Charles S. Mackenzie INVENTOR

BY Jeffrey, Symmes & Eggleston

ATTORNEY

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UNITED STATES PATENT OFFICE

CHARLES S. MACKENZIE, OF BOUND BROOK, NEW JERSEY

METHOD FOR SUPPORTING TROUSERS

Application filed May 17, 1928. Serial No. 278,425.

The invention is a method of improving the appearance of trousers being worn by improving the drape or hang thereof over the body of the wearer and of giving him greater comfort and satisfaction by forcing the front and back creases customarily pressed in trousers' legs into vertical planes and balancing the front and back portions of each of said trousers' legs from points in the waist part or waist band of said trousers into said vertical planes and of overcoming or counteracting transverse or angular wrinkles, creases and folds thereof, which cause them to look inartistic, ungraceful and slovenly and which cause discomfort and annoyance to the wearer.

It is a matter of common knowledge that trousers worn by some people look neater, more artistic and more graceful than those worn by others. In the case of the latter, they vary in degree of inelegance from those that are somewhat ungraceful up to those that look very ungraceful and slovenly.

It will be conceded that of trousers that look the neatest and most graceful, the legs thereof hang straight down over the legs of the wearer with the front and rear pressed creases, i. e. those intentionally pressed therein by the tailor, appearing as straight, unbent or unbroken lines when viewed in the vertical planes thereof, and that the more there are of transverse and angular wrinkles, and the more broken, bent or distorted are the vertical front and rear pressed creases, the more ungraceful and slovenly such trousers appear.

Although the waist measure and leg lengths of many trousers conform with the waist measure and leg length of the wearers, they are none the less liable to troubles such as those above recited which render them ungraceful and slovenly.

In seeking a reason for this I observed that trousers worn by slender men are far less liable to develop distorting wrinkles, and when present are to a lesser degree, than those worn by fleshy people.

That in cases where trousers were accurately made to measure and conformed to the figure and convolutions of the body so that they would hang or drape over it without undue pressure at any part thereof, they look neater, more artistic and graceful than those that do not so conform.

After careful investigation, I ascertained the reason for this to be that where there was little or no body pressure against trousers, they hung around the body and legs of the wearer with few distorting wrinkles. But where there was body pressure thereon (and this I found to be so in the greater majority of cases) the trouser material was pulled toward the points of pressure causing angular or transverse wrinkles to appear in the lower body part and leg parts, causing the front and back vertical pressed creases to appear as bent or crooked lines and giving to the trousers generally a slovenly appearance, or, to use the common mode of expression, to hang badly. I also observed that a similar condition arose in some cases where there was an excess of trouser material at certain points.

I found that it was not a question of whether or not trousers "fit" the wearer. It is purely a question of how they are draped over the body and legs which determines what their appearance will be. Trousers may "fit" the wearer, that is to say, conform to his figure and all the convolutions of his body and legs and still disclose the distorting wrinkles and creases above referred to.

In the case of very fleshy men, although their trousers may "fit" them as well as could be expected, unless they drape loosely over them, it cannot escape attention that in walking there is a decided pull exerted on the trousers at the abdominal part which pulls the back part of the trousers' legs above the knees against the leg of the wearer causing transverse and angular wrinkles and causing the legs of the trousers to rise, particularly at the back part when the legs are finishing the step, and conversely when the legs are being advanced, on account of pull exerted at the seat.

I also found that in trousers that were either too high or too low in the waist in either the front or the back or did not otherwise conform to the figure in such a way that they

draped over the same without undue pressure, or had undue slackness in any parts, similar distorting wrinkles appeared therein.

Having discovered the causes of these distortions my object was to find some way whereby they might be overcome in a simple and effective manner. Experimentation showed me that this could be accomplished by exercising vertical pulls of sufficient force in the waist portion of the trousers at certain definite points therein and that at no other points therein, could this be accomplished.

These points are four in number and are located in the waist portion or in the waistband thereof, two of which are in the vertical plane of the axis of the wearer's right foot when it is pointed straight forward, and the other two of which are in the vertical plane of the axis of the wearer's left foot when it is pointed straight forward, and this location is a necessary and important part of my method.

The strength of pull required at said points for the accomplishment of the purpose aforesaid, must be sufficient to overcome or counteract the effect of body or leg pulls on the trousers and of slackness due to excess of material at certain points which cause angular or transverse wrinkles as above described, and to force the front and back vertical pressed creases to appear as straight, unbroken or unbent lines when viewed in the planes thereof.

Whether the pull having the greatest force should be exerted at the two front points or at the two back points of said four points of support, or be otherwise regulated between them, depends entirely on the nature of the trouble and where it is located, that is sought to be overcome or counteracted in any given pair of trousers. This can easily be determined by the wearer.

These pulls can be executed by the hands of the wearer and the claims advanced herein can easily be demonstrated by any man for himself by following the method described.

In so doing he will observe that by pulling the trousers in a vertical direction at the front and back points of said four points of support, which are in the same vertical plane, he can force all parts of the front and back vertical pressed creases into said vertical plane, thus making them appear as straight, unbroken or unbent lines when viewed in the plane thereof. Such pulls will give to the legs of the trousers a balance or equilibrium between the fore and rear parts thereof from their points of suspension at said two points of support. The essential purpose is the overcoming or counteracting of the effects of body and leg pulls on different portions of trousers as well as of unnecessary slack, all of which produce distorting angular or transverse wrinkles, which distort the pressed creases and cause an upward pull of the trousers' legs, giving an ungraceful and slovenly appearance. This can be accomplished by the series of acts done in the way above outlined and which constitutes my new method.

This method consists in exerting vertical upward pulls of sufficient force in the waist portion of trousers at four and only four points therein, two of which are located in the vertical plane of the axis of the wearer's right foot when it is pointed straight ahead, and the other two of which are located in the vertical plane of the axis of the wearer's left foot when it is pointed straight ahead, the force of such pulls being sufficient to counteract all distorting wrinkles produced by body or leg pressure on the trousers or by slack in the fabric and likewise sufficient to pull the vertical pressed creases of each leg into their respective vertical planes so relating such pull at each of said four points of support as will accomplish these results.

Having demonstrated that such method of manipulation accomplishes the above results, it became necessary to find a means for sustaining these results so as to render the method practicable and therefore useful. It was ascertained that this could not satisfactorily be accomplished by the use of suspenders or an ordinary encircling belt or by any other known means of supporting trousers, without considerable change. I invented a means specially suited to the purpose and which is exemplified in the accompanying drawings, wherein,—

Figs. 1 and 2 illustrate more or less diagrammatically the necessary relation of the points of support to the feet of the wearer;

Fig. 3 is a perspective view of a portion of the belt with the preferred form of supporting element supplied;

Fig. 4 is a horizontal section through the belt supporting element, attachment element and waistband in position or slightly separated for clearness;

Fig. 5 is a vertical section of the same;

Fig. 6 is the attachment element or hook designed to cooperate with the supporting element of Fig. 3.

The belt 1 may be any ordinary belt with a suitable adjustment means or buckle 2. It is worn over the shirt, not shown, or other undergarment, so that it is inside of the waistband.

The letters A, B, C, and D mark the four points at which the trousers are supported according to this invention and as indicated by the dotted line, they will be seen to be located respectively vertically above the center of the instep, or forward part of the foot, and the center of the heel, or back part of the foot. The location of said four points of support is most important and requires to be stated since even a moderate variation will throw the trousers out of balance with the axis of the leg and thereby will result in the objections referred to. Although the

diagram of the drawing shows the points A, B, C and D in parallel planes, it will be understood that this is for clearness of illustration and that their position is in any event in the vertical planes of the axes of the two feet of the wearer when they are parallel and facing straight forward.

As a preferred form of supporting and attachment means, I employ an element comprising a metal plate with off-set end portions 3 vertically slotted to receive the belt, and a central portion provided with a vertical series of identical horizontal crossbars 4 equally spaced from one another, like a ladder. This central portion is disposed on the outside of the belt and by the arrangement of the off-sets is spaced slightly away from it to provide clearance for the head 5 of the attachment element, shown in Fig. 6. The vertical slots in the off-set end portions 3 are of a width slightly wider than the thickness of the belt sufficient to allow the supporting element to be readily worked along the belt either forward or backward as desired, when the belt is loose, by exercising a moderate degree of force with the fingers, but not sufficiently wide to permit the supporting element to slide along it without pressure. The purpose of this is to prevent a change of position of the supporting element, due to slipping along the belt, when the belt is removed from the body.

The horizontal slots between the crossbars 4 are designed as to vertical width with reference to the length of the head 5 of the attachment element shown in Fig. 6 as well as with reference to the thickness of the crossbars 4 and their distance from the underlying portion of the belt, so that the T-shaped head of the attachment element can be inserted in any of said slots as desired at an angle so that the guard part at the top of the head 5 will just clear the nearest upper crossbar 4 of the supporting element and rest under it as the arm supporting the head 5 comes in contact with and rests on the next lower crossbar. It is obvious that if the head of the attachment element were too long with reference to the vertical width of the horizontal slots, the thickness of the crossbars, and the distance they are away from the underlying portion of the belt, all of the head and particularly the guard part at the top thereof could not enter such slots, as the head having to enter the slots at an angle would come in contact with the underlying belt and its progress be stopped. Conversely if the slots had too great vertical width, with reference to the length of the head 5, the thickness of he crossbars 4, and the distance the underlying portion of the belt is away from the crossbars, the angle at which the head 5 could enter or be removed from the slots would be so slight that there would be grave danger of the attachment element becoming accidentally disengaged from the supporting element shown in Fig. 3.

In order to facilitate the insertion of the head 5 of the attachment element Fig. 6 in the slots between the crossbars 4 the head portion 5 is set at an angle to or slightly curved away from the base 7. The head 5 is offset from the base 7 of the attachment element Fig. 6 a sufficient distance so that the lower part of the base 7 will not come in contact with any of the crossbars 4 when the head of the attachment element is being set in any of the slots between he crossbars 4.

By constructing the engaging part or head part of the attachment element as above indicated, with reference to the central portion of the supporting element as above described, the attachment element can easily and quickly be engaged with the supporting element by pushing the hook part 5 of the attachment element inward and downward through the desired slot in an arc-like direction, and may, as easily and quickly, be disengaged therefrom, by pulling the attachment member upward and outward in an arc-like direction. The fact that it is almost impossible to disengage the attachment element from the supporting element except by an arc-like motion upwards and outwards prevents it from becoming accidentally disengaged.

This attchment element is secured in any appropriate manner to the inner face of the waistband 6 and its T-shaped head is adapted, as above described, to be introduced between any of the crossbars 4 by first inserting the lower hook end or point of the head and then pushing it inward and downward in an arc-like direction, so that the guard part comes under the next upper crossbar and the base of the attachment element becomes parallel with the belt surface. In this position, Fig. 5, accidental disengagement is safely prevented. The attachment element may be secured to the waistband by sewing, for which purpose its base 7 is perforated as indicated, or it may be secured in any other appropriate way, but in any case an attachment element is carefully located at each of the four points of support as hereinbefore indicated. The supporting elements are first located on the belt as nearly as may be, to be in alignment with the attachment elements, when the trousers are being worn, and the belt is then fastened around the wearer's waist at the desired tension; the trousers are then buttoned up and the four points in the belt in the vertical planes of the front and rear attachment elements respectively on the waistband are noted; the belt is then loosened and the supporting elements are moved along it as required so that they will be in position to register with the hooks of the attachment elements and the belt is again fastened to the desired tension; the attachment elements are then engaged with the particular crossbars

of the supporting elements both in the front and in the rear as will conform to the height to which the trousers have been pulled at said four points of support respectively. Any slight lateral variation of the position of the supporting elements with reference to the attachment elements is of no importance provided it is slight for the reason that the horizontal slots of the supporting elements are purposely made about one half inch longer than the width of the head of the attachment element, so as to compensate for any such variation and in order to permit self-location of the attachment elements in their respective predetermined and correct positions.

It is advisable to affix the attachment elements to the lower margin of the waistband at the four points of support, as this will usually permit of about one inch increase in vertical adjustment of the trousers. It also provides a maximum of waistband to cover the belt so in most cases to entirely conceal it. It will be noted that the invention consists in providing for the support of the trousers only at the four points of support described, and that if additional attachment devices are employed they will defeat the purpose of the invention unless so used as to be without effect on the trousers' legs.

It will be apparent that within the principles above explained the invention can be embodied in numerous forms and applied in a variety of ways.

Having described my invention, I claim:

The method of adjusting and supporting trousers on the wearer thereof which consists in affixing attaching elements to the waistband of the trousers at four points only two of which said points are in the front and back parts thereof respectively, in the perpendicular plane of the axis of the wearer's right foot when it is pointed straight forward and the other two of which are in the front and back parts thereof respectively in the perpendicular plane of the wearer's left foot when it is pointed straight forward, applying around the wearer's waist a belt or girdle equipped with four laterally adjustable supporting elements respectively capable of engaging said four attaching elements at any desired height within a range of about the width of said belt, adjusting said supporting elements so that each one thereof shall be in perpendicular alinement with one of said attaching elements, then by hand exerting such degree of vertical pull on the waistband at each of said four points of support as will be sufficient to force the vertical creases customarily pressed in the front and back parts of trousers' legs into said vertical planes throughout their entire length, as nearly as may be, and the bottoms of the trousers' legs to the desired height, so relating said pull however at said points that the front and rear portions of each trouser leg are substantially equally spaced from the axes of the wearer's legs, and finally in the position thus established, detachably engaging said attaching elements with their said complementary supporting elements so as to maintain said position, substantially as set forth in the specifications.

In testimony whereof, I have signed this specification.

CHARLES S. MACKENZIE.