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SHOULDER STRAP CONSTRUCTION

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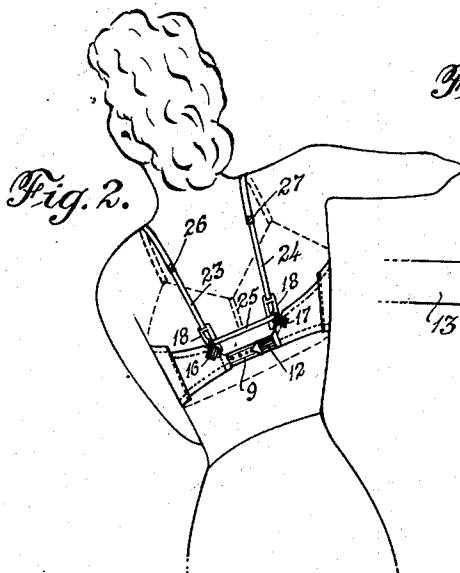
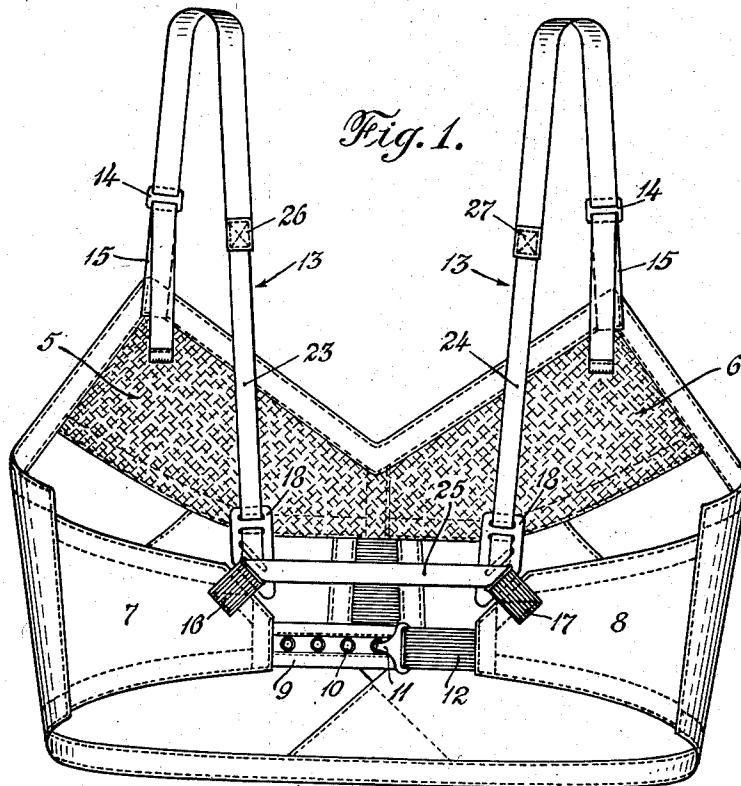


*Fig. 3.*

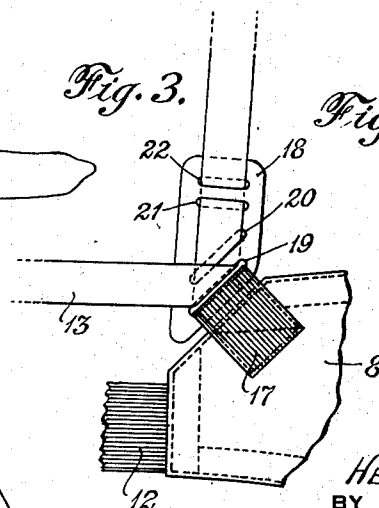
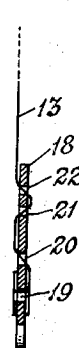


*Fig. 4.*



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## UNITED STATES PATENT OFFICE

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## SHOULDER STRAP CONSTRUCTION

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6 Claims. (Cl. 2—42)

The invention relates to a novel shoulder strap construction for brassières or other bust-supporting undergarments, slips, and the like garments or garment supporting adjuncts utilizing a pair of straps to suspend the garment from the shoulders.

An object of the invention is to provide an improved construction for supporting a brassière or slip from the shoulders of the wearer by means of shoulder straps which are entirely free to move with respect to each other, the entire shoulder strap supporting structure being constituted of a substantially single length of taping secured at its extremities to the bust supporting pockets of the brassière or the equivalent front sections of a slip, passing over the shoulders of the wearer and then along the back section of the body-encircling portion of the garment.

A more specific object of the invention is to provide a shoulder strap construction in which a single length of shoulder strap material is divided into two sections, each of which acts as a shoulder strap, the two sections, however, being integral at the back of the garment and being maintained in such position upon the wearer as to cause an equalizing sliding or floating control of the length of each shoulder strap section, and thereby permit free bodily movement of the wearer without cutting, binding or dropping of either shoulder strap in the course of such bodily movement.

The primary effect of my novel construction of garment and shoulder strap arrangement therefore, is that the respective sections of the tape constituting the shoulder straps are permitted to be readily taken in to take care of any necessary inequality in the length of either section of the shoulder strap in the course of bodily movement of the wearer.

A marked disadvantage of all brassières constructed in accordance with the prior art, whether or not they embody elastic sections in the shoulder straps, is that when the wearer of the brassière moves out of the strictly erect position of her body, for instance in bending down or carrying out some task or activity involving bodily movement, the shoulder straps get out of position, necessitating a readjustment to their effective supporting position upon the wearer's re-assuming the upright position. Thus, when the downward movement of one shoulder takes place, for instance if the wearer of the brassière bends down to pick up an article, the shoulder strap necessarily becomes slack and the bust on the side toward which the downward movement of the shoulder takes place, tends to drop. When

the person again assumes an upright position, there being a slack in the shoulder strap, it is ineffective to bring the bust again back to its proper position without some manipulation of the shoulder strap to take up the slack therein or of the bust.

Aside from the disadvantage of the inability of the shoulder strap when thus slackened, to effectively control the bust position, the shoulder strap upon any such bodily movement, involving a bending and therefore a dropping of one shoulder, becomes so loose as to fall away from the proper position thereof upon or across the shoulder. This disorganization of the shoulder strap position is true in the case of a slip. Such a movement, disorganizing, in the case of a brassière-like front section of a slip, the proper positioning of the shoulder strap upon the shoulder and of the bust itself, has no effect, in the conventional structures of the prior art, upon the other shoulder strap or breast of the wearer. In other words, in the prior art structures, if one shoulder strap became slack or tight, there was no equalizing action to compensate for the slackness or tightness of such shoulder strap, and a difference in the positions of the wearer's busts was inevitable upon the resumption of the normal, erect, position of the wearer.

It is the object of my invention to accomplish such an equalizing action of the two shoulder straps. I obtain this object by utilizing virtually a single strap having two sections, each effective as an individual shoulder strap, but the two sections being joined together and constituting a single length of material which is positioned over the shoulders and across the back of the brassière without any restraining anchorage of any portion thereof. The novel arrangement effects the equalizing action by a simple sliding of the shoulder strap material in the manner of a pendulum.

The principle characterizing my novel construction is that the entire length of material, constituting the shoulder strap sections and the length of material joining such sections, is supported in a free floating movement by a pair of guide members attached to the rear portions of the brassière at approximately the point where each shoulder strap section terminates. By the utilization of this floating arrangement of the shoulder straps, the effect is accomplished that as one shoulder is dropped, the shoulder strap sections are permitted to move very much in the manner of a harness and when the dropped shoulder is again raised, as by the assuming of the erect position of the wearer, a readjustment of the shoulder

straps is accomplished, so that the busts are supported in substantially the same position as they had before the movement of the wearer took place. In other words, as one bust drops upon the bending of the wearer's body, the shoulder strap section on that side becomes longer to accommodate the movement of the body, but immediately upon the reestablishment of the erect position of the wearer, the shoulder strap again pulls the bust back to its original position.

I am aware that the problem which my novel construction of brassière is designed to solve has been recognized by those skilled in the art, but such attempts as have been made toward a solution of the problem have been ineffective. The primary reason for this failure is that the workers in the prior art have not recognized the necessity of maintaining a floating position of a single strip of material constituting both shoulder strap sections with the intermediate section being permitted to slide. One particular attempt at the solution of the problem is illustrated by a construction in which the shoulder straps are led through a guide point or points at the back of the brassière, but this construction fails in effecting the desirable control which my construction accomplishes, by reason of the fact that the shoulder straps in such prior construction are fixed at a point or points either in the front or in the back of the prior art garment.

A specific embodiment of my invention is illustrated in the accompanying drawing, in which

Fig. 1 is a view of a brassière constructed in accordance with my invention, looking at the brassière from its back;

Fig. 2 illustrates the position of my novel construction of brassière upon the body of the wearer, showing the manner of its accomplishing an equalizing action;

Fig. 3 is an enlarged detail view of the guiding element of my novel shoulder strap construction, and the manner of its securement to the brassière body; and

Fig. 4 is a section through the guide element, showing the passage of the shoulder strap material through the various slotted openings thereof.

Referring more particularly to the drawing, in which similar reference characters identify similar parts in the several views, the brassière comprises two bust supporting pockets 5 and 6 of any conventional construction and two back members 7 and 8 secured to the back edges of the bust supporting sections. One of the back sections is provided with a non-elastic strap 9 having a plurality of eyelets 10, any one of which is capable of being engaged by a cooperating fastener element 11 secured to the free end of an elastic strap 12 extending from the opposite back section 8.

My novel shoulder strap construction is constituted of a single length of material 13 of conventional taping which has its free ends pass through an adjusting member 14 of conventional construction, attached to the ends of tapes 15 secured to the upper extremities of the breast supporting pockets 5 and 6.

To each of the back sections 7 and 8 is secured, by elastic members 16 and 17, a guide element 18 which may be preferably formed of Celluloid, cellulose acetate, or any similar composition material which has die-cut therein a plurality of slots. The guide element 18 is preferably of a configuration such as is shown in the drawing, in which the lower edge thereof is at an angle of approximately 45° to the vertical axis of the element, with two slots 19 and 20 provided in the ele-

ment running substantially parallel to its angularly disposed lower edge. The guide elements 18 are secured to the back sections of the brassière by the passage of the elastic strips 16 and 17 through the slots 19.

In the particular embodiment of my invention illustrated, the shoulder strap tape 13 is intertwined in and through the guide element, for free sliding movement therein, in nearly, but not quite, right-angled direction by having the tape first passed through the slot 19, then upwardly through the slot 20; then down to beneath the element through the slot 21 and again upwardly to above the guide element through the slot 22. Any pull upon either the horizontal or the vertical section of the tape 13 will thus permit the sliding movement thereof in nearly right-angled direction by passage of the tape through the guide element.

The single length of shoulder strap material or tape 13 has thus three distinct sections, although all are joined in an integral strip. These sections are the right and left shoulder strap sections 23 and 24 and the substantially horizontal section 25 which extends between the two guide elements 18 at the back of the brassière.

The operation or functioning of my novel shoulder strap arrangement is best illustrated in Fig. 2. Looking at the back of the wearer, as the left shoulder drops, the shoulder strap section 23 becomes slack. By the corresponding tightening of the right shoulder strap section 24 by the raising of the right shoulder of the wearer, there will be a movement of the shoulder strap tape 13 as a whole from the left to the right. This is permitted by the passage of the shoulder strap tape 13 through the slots of the guide elements 18, the shoulder strap tape moving downwardly through the slots of the left hand guide element and upwardly through the slots of the right hand guide element. In Fig. 2 the equalizing movement of the shoulder strap sections is clearly illustrated by the movement of the juncture points 26 and 27, of the tape 13 which are purposely illustrated, the former downwardly and the latter upwardly. These juncture points are of course not essential and the tape 13 may be made of a single length of material but it is thought that the functioning of the floating arrangement of the shoulder straps will be made clearer with the aid of such illustration.

Again referring to Fig. 2, it will be noted that in the absence of the movement downwardly of the back portion of the shoulder strap section 23, the left bust pocket, as the left shoulder faces or twists downwardly, would ordinarily drop from its proper position and become loose. However, by reason of the taking up of the slack in the shoulder strap section 23 by the corresponding movement upwardly of the shoulder strap section 24, the bust pocket position is controlled and maintained substantially constant, and the bust is prevented from dropping. When the shoulders are again straightened out upon resumption of the erect position by the wearer, the shoulder strap tape 13 will again move, but this time in the opposite direction through the guide elements 18 and the two busts of the wearer will be thus maintained in equalized position. The floating movement of the shoulder strap sections 23 and 24, when the bodily movement of the wearer takes place, will also prevent the cutting, binding or displacement of the shoulder straps from their correct position overlying the upper crest of the shoulders.

The functioning of my inventive structure can also be clearly made evident from the utilization of the small elastic strap 12 in the back of the brassière. Ordinarily, the use of such a small elastic section has no effect upon the proper positioning or movement of the shoulder straps. With my arrangement, however, the shoulder strap tape 13, as the small elastic section is extended during inhalation, is still permitted to accomplish its floating movement through the guide elements 18, so as to permit maintenance of the correct positions of the shoulder strap sections over the shoulders of the wearer, even in a twisting bodily movement of the wearer.

While I have described a specific embodiment of my invention, it is obvious that various modifications therein may be made, particularly in the arrangement and configuration of the several parts, without departing from my invention. For instance, while I have described and illustrated a specific form and configuration of the two guide elements 18, it is obvious that various other forms for such guide elements may be utilized, including the use of a single guide element structure having, however, adequately spaced guides, as shown, for changing the direction of the tape with a minimum of friction and without binding. Also, ordinary rings or rectangular wire elements, or guide elements having flat interior channels may be used, although the excellent results which I secure by the specific embodiment of my invention illustrated may not be attained by such simple devices. Also, while I have illustrated my improvement specifically as applied to a brassière, it may obviously be utilized in any body-encircling shoulder strap-supported undergarment, and also in a shoulder strap arrangement for a garment supporting structure such as a pair of suspenders.

I claim:

1. A brassière comprising a pair of bust-supporting pockets, a pair of back sections forming part of the garment and adapted to be detachably secured together, a single shoulder strap tape having its end portions secured to said pockets, and a pair of horizontally spaced guide elements for said tape secured to said back sections, said guide elements being made of relatively rigid material and being smooth-surfaced to create a minimum of friction, each element having slots angularly disposed to each other through which the tape is threaded, said tape being turned in the substantially flat condition through approximately 90° in passing through each guide element, the tape passing over the left shoulder to the left guide element, then to the right guide element and then over the right shoulder, whereby tape is readily taken in between one shoulder and its corresponding guide element and simultaneously paid out between the other shoulder and its corresponding guide element as the relative position of the shoulders changes, so that the bust pockets remain in snugly bust-supporting position during various movements of the shoulders.

2. A brassière comprising a pair of bust-supporting pockets, a pair of back sections forming part of the brassière and adapted to be detachably secured together, and a pair of guide elements

for said tape secured in spaced relation to said back sections, a single shoulder strap tape threaded through both guide elements and passing over both shoulders and secured to the pockets, the guide elements being so spaced that the sections of the tape from the shoulders to said elements are approximately parallel, each of said guide elements comprising a flat member made of smooth-surfaced, relatively rigid material and having a plurality of tape-guiding slots, one of said slots being disposed at an angle of approximately 45° to the vertical axis of the member, and another of said slots being disposed at approximately a right angle to the vertical axis of said member, whereby the tape enters the guide elements in the substantially flat condition and in passing through said slots is given an approximately right-angled turn in the direction of its sliding movement and leaves such elements likewise in the substantially flat condition.

3. A brassière as claimed in claim 1, in which one of the slots in each of the guide elements guides the tape, as it enters from the shoulder side, to a slot disposed approximately 45° to the vertical axis of the guide element.

4. A brassière as claimed in claim 1, in which the pair of guide elements for the tape are secured by elastic straps to the back sections of the brassière.

5. A shoulder strap structure for supporting a garment from the shoulders of the wearer, comprising a tape having approximately vertical sections passing over each of the shoulders, and horizontally spaced guide elements for said tape permitting relative lengthwise sliding movement of the tape therethrough, and guide elements being made of relatively rigid material and being smooth-surfaced and each having an approximately horizontal slot and an angularly disposed slot through which the tape is threaded, the angle between the angularly disposed and horizontal slots being approximately 45°.

6. A brassière comprising a pair of bust-supporting pockets, a pair of back sections forming part of the garment and adapted to be detachably secured together, a single shoulder strap tape having its end portions secured to said pockets, and a pair of horizontally spaced guide elements for said tape secured to said back sections, said guide elements being made of relatively rigid material and being smooth-surfaced to create a minimum of friction, each element having slots angularly disposed to each other through which the tape is threaded, the tape passing over the left shoulder to the left guide element, then to the right guide element and then over the right shoulder, whereby tape is readily taken in between one shoulder and its corresponding guide element and simultaneously paid out between the other shoulder and its corresponding guide element as the relative position of the shoulders changes, so that the bust pockets remain in snugly bust-supporting positions during various movements of the shoulders, the guide elements for the tape causing a change in the direction of movement of the tape of slightly more than 90°.

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