March 18, 1958 G. DREWS 2,826,769

BORDER STABILIZER

Filed Jan. 31, 1956 2 Sheets-Sheet 1

Fig. 1.

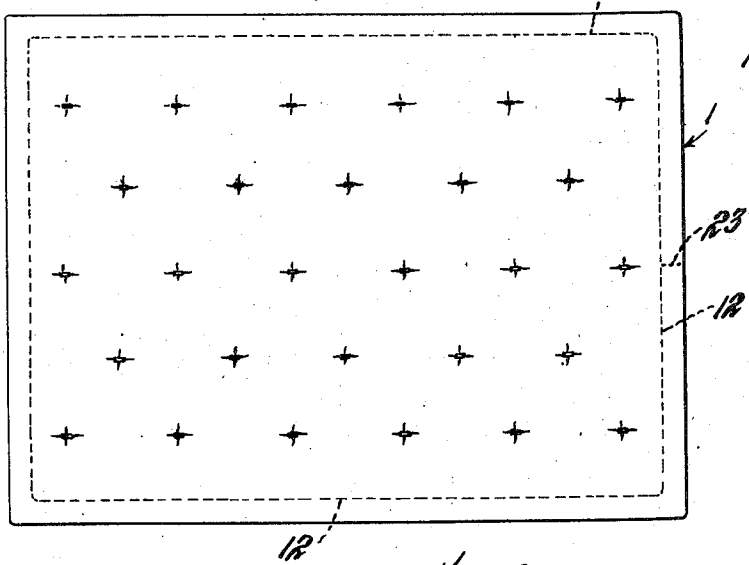
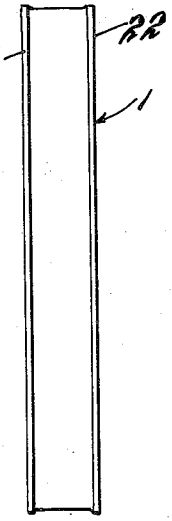


Fig. 2.



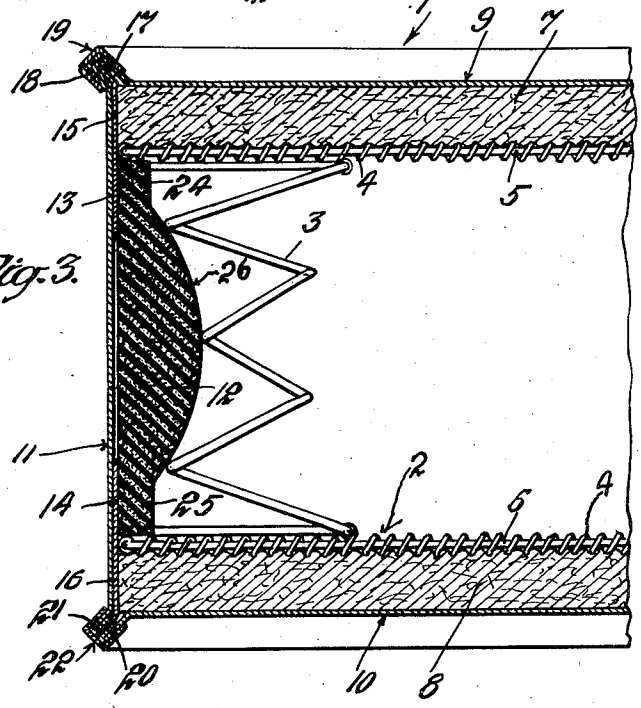


Fig. 3.

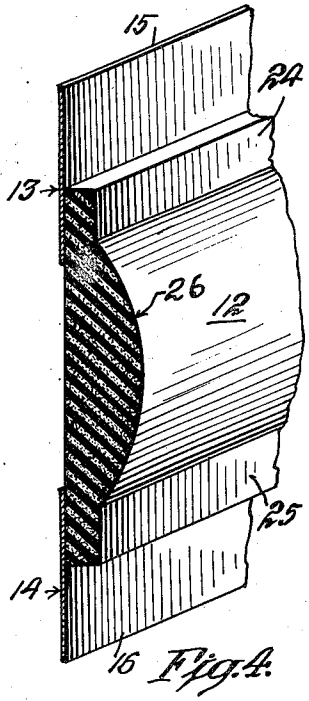


Fig. 4.

INVENTOR.

Gustav Drews

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Fig. 5.

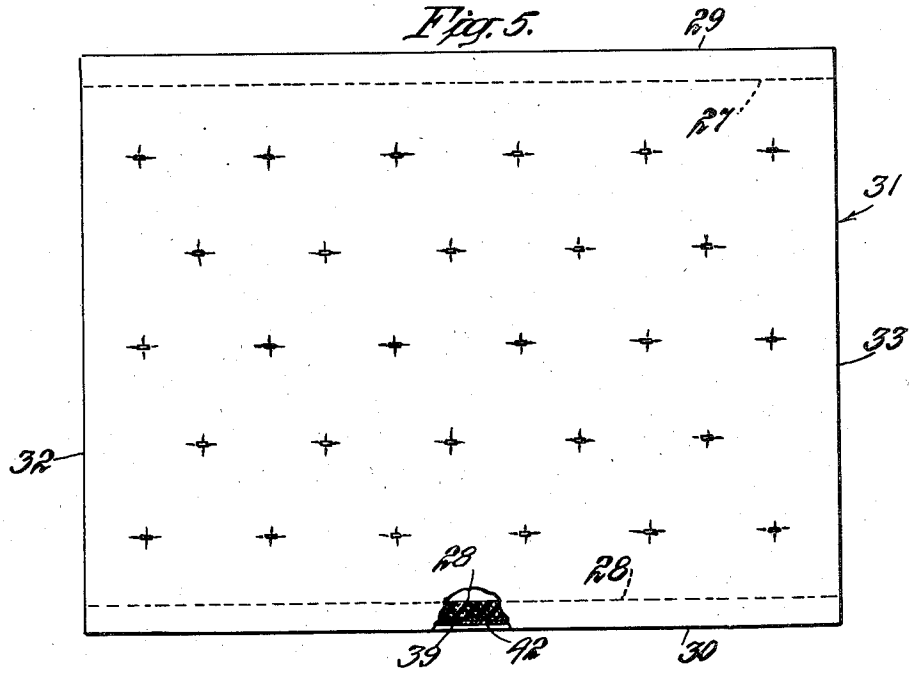
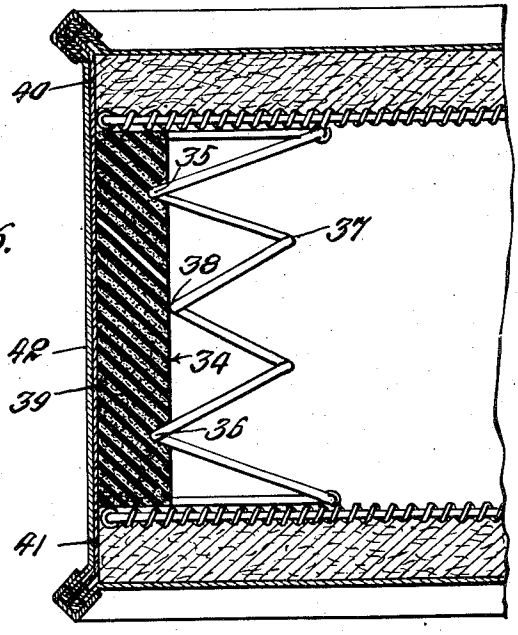


Fig. 6.



INVENTOR.

Gustav Drews

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2,826,769

BORDER STABILIZER

Gustav Drews, Garden City, N. Y., assignor to Eclipse Sleep Products, Inc., Brooklyn, N. Y., a corporation of New York

Application January 31, 1956, Serial No. 562,469

5 Claims. (Cl. 5—351)

This invention relates to stablizers for mattress borders in general, and more particularly to border stabilizers which are composed of a soft, yieldable material such as foam rubber, a plastic material, or the like.

Among the objects of the present invention, it is aimed to provide a border stabilizer which will produce a uniform, smooth border throughout the entire length of the border or border sides of the mattress, which will at the same time also assure resuming its normal position after a compression force has been removed, and which will cooperate with the adjacent end spirals or hour-glass coils to eliminate any objectionable hard spots in the border when sitting upon the same as an instance.

More specifically, it is an object of the present invention to provide a border stabilizer composed of a soft, yieldable substance such as foam rubber, a polyester, a plastic material, or the like, which can be intimately attached to the entire inner face of the border to insure a uniform, smooth outer appearance for the border at all times when the compression on the border has been removed, and at the same time form a body-forming resistance to eliminate the necessity of securing a felt filling in the border of the mattress, which will yield uniformly in all directions depending upon the pressure exercised thereby eliminating any objectionable hard spots, and which will cooperate with the spirals or hour-glass coil springs of an inner spring unit to enable said inner spring unit mainly to absorb the pressure exercised upon the border and in turn rely upon the border stabilizer primarily to return the border to its expressed or expanded position when the pressure on the border has been removed.

These and other features, capabilities and advantages of the present invention will appear from the subjoined detailed description of specific embodiments thereof illustrated in the accompanying drawings, in which:

Fig. 1 is a plan view of a conventional, full size mattress equipped with a one-piece border stabilizer made according to the present invention extending not only along the sides, but also along the ends, of the mattress, and Fig. 2 is an end view of the same.

Fig. 3 is an enlarged fragmental section on the line 3—3 of Fig. 1.

Fig. 4 is a fragmental perspective of the border stabilizer detached.

Fig. 5 is a plan view similar to Fig. 1 showing a full size mattress equipped with two sections of the border stabilizer made according to the present invention extending only along the two sides of the mattress and not formed in the ends of the mattress.

Fig. 6 is an enlarged fragmental section similar to Fig. 3 showing another form of the border stabilizer made according to the present invention.

In the embodiment shown in Figs. 1 and 2 there is illustrated a full size mattress 1 conventionally about seventy-four inches long by fifty-four inches wide by about eight inches deep, having an inner spring unit 2 consisting essentially of a plurality of hour-glass or

spiral springs 3, conventionally arranged in about twenty-one rows of fourteen springs 3 to a row. These springs 3 are conventionally interconnected as shown in United States Letters Patent No. 2,509,831 issued May 30, 1950. The springs 3 as there shown, adjacent the ends and sides of the mattress, are in turn connected at their upper and lower ends by the coil springs 4 to the rectangular upper and lower border wires 5 and 6, respectively.

Above and below the levels of the border wires 5 and 6, conventionally there are placed felt fillings 7 and 8, before compression about two inches deep, and after compression approaching one inch in depth.

Thereupon the mattress ticking or mattress panel covering is secured in place, comprising the upper sheet 9, the lower sheet 10, and the border strip 11, the ends of the strip 11 being secured to one another as by stitching or the like, and the outer edges of the sheets 9 and 10 secured as by stitching to the upper and lower edges of the border strip 11, all in accordance with convention as an instance.

In the present instance, when a one-piece strip of the border stabilizer 12 is used as shown in Fig. 1, two tapes 13 and 14 are secured to the outer face of the stabilizer strip 12 of about two inches in width, the upper tape having about a one inch width of the tape 13 secured along the upper, outer face of the strip 12, with about a one inch width free and extending beyond the upper edge of the strip 12, and similarly about a one inch width of the tape 14 secured along the lower, outer face of the strip 12 with about a one inch width free and extending beyond the lower edge of the strip 12.

The strip 12 preferably is composed of foam rubber of a polyester or of a plastic material consisting as an instance either of (1) a polymerized rubber replacement consisting of a polymerization product of monovinyl acetylene and hydrochloric acid, (2) a rubber-like product known as factice obtained by heating an unsatiated oil with sulphur or sulphur monochloride, of which linseed or rape seed oil are typical, in some instances, vulcanized, or (3) a rubber-like product obtained by the reaction of dicarboxylic esters and dialcohols in the presence of diisocyanate, or the like. The tapes 13 and 14 may be composed of cotton fabric or the like, and in turn the connection between the tapes 13 and 14 and the strip 12 may be effected by any suitable adhesive, plastic cement, rubber cement, or the like, or even by metal staples. Excellent results have been achieved when the tapes 13 and 14 are so-called rubber cemented tapes, and the cemented surface of the tape applied to the strip 12.

The free portions 15 and 16 of the tapes 13 and 14, respectively, see Figs. 3 and 4, are preferably secured to the ticking sheets 9 and 10 and the outer strip 11. As shown, the end of the free portion 15 is positioned between the end portion 17 of the sheet 9 and the end portion 18 of the strip 11, and then a second tape 19 secured around the outer faces of the sheet 9 and the outer face of the strip 11 and stitched in place. In turn, the outer end of the free portion 16 is positioned between the end portion 20 of the sheet 10 and the end portion 21 of the strip 11, and then a second tape 22 secured around the outer faces of the sheet 10 and the outer face of the strip 11 and stitched in place.

In the embodiment shown in Figs. 1 to 4, inclusive, the ends of the strip 12 are shown as abutting one another at 23. Furthermore, the outer face of the strip 12 is shown as plane, the outer portion 24 and lower portion 25 are substantially rectangular with the inner face 26 of the strip from the upper portion 24 down to the lower portion 25 being convex, and conforming to and extending into engagement with the outer edges of

the outermost hour-glass spiral springs 3. As a result of this intimate nesting between the strip 12 and the outer rows of hour-glass springs 3, the hour-glass springs 3 cooperate with the strip 12 in stabilizing the border. When pressure is exercised upon the mattress adjacent the border, the strip 12 will of course yield, and portions of the same extend into and between the spiral portions of the adjacent springs 3. However, the springs 3 will cooperate with the strip 12 so that, as an instance, the strip 12 cannot collapse inwardly into a U-shape. While strips 12 composed of foam rubber can be bent into a U-shape without noticeable injury to the composition of the strip 12, obviously the life of the strip will be materially prolonged if such excessive bend can be eliminated. Since the outer plane face of the strip 12 will be maintained in substantial engagement with the border strip 11, it will form an inner body for the strip 11 so that when engaged by the fingers of a user the strain in the strip 11 will be taken up by the strip 12 and the life of the border strip 11 thereby materially prolonged. Still furthermore, due to the fact that the strip 12 will be uniform in elasticity throughout its length, intermittent hard spots along the border will be positively eliminated.

In the embodiment shown in Fig. 5, in place of a one-piece strip 12 there are provided two strips 27 and 28 which are secured to the sides 29 and 30 of the mattress 31, and the ends 32 and 33 not provided with a border stabilizer such as the sections or strips 27, 28.

In the embodiment shown in Fig. 6, instead of the strip 12, the strip 34 is provided which is substantially rectangular in cross section and reliance placed upon the yieldability of the strip 34 to permit, as an instance, the edge portions 35 and 36 of the hour-glass spring 37 to extend into the strip 34 while the intermediate inner face of the strip 34 merely abuts against the edge 38 of the intermediate spiral of the hour-glass spring 37.

Excellent results have been achieved when the strip 12 extends from the wire 5 to the wire 6 and its maximum depth is about one to six of the width or altitude from wire 5 to wire 6, and in turn the maximum depth is about twice the depth of the portions 24 and 25.

In turn, with the strip 34 shown in Fig. 6, excellent results have been achieved when the depth throughout relative to the altitude or width is about one to six. In other words, for a six inch width, the depth of the strip 34 would be about one inch.

In the embodiment illustrated in Fig. 6, in place of two tapes 13 and 14 there is here provided a single tape 39 secured to the outer face of the strip 34. This tape 39 here shown may also be connected to the strip 34 by any suitable adhesive, plastic cement, rubber cement or the like, or even by metal staples. The tape 39, just as is the case with the tapes 13 and 14, has portions 40 and 41 extending beyond the upper and lower ends of the strip 34. These freely extending portions 40 and 41 are provided to be connected to the mattress covering or mattress ticking, just as is the case with the freely extending portons 15 and 16 of the embodiment shown in Fig. 3. With the tape 39 extending across the entire face of the strip 34 there will of course be no voids or spaces formed between the ticking border strip 42 and the stabilizer strip 34 as is the case between the tapes 13 and 14 of the embodiment illustrated in Fig. 3. Consequently, such voids or spaces even though slight, will be entirely eliminated with the embodiment illustrated in Fig. 6. Excellent results have been achieved when this space was so eliminated in the interest of positively maintaining a smooth outer face for the ticking border strip 42. With the tape 39 extending across the entire outer face of the stabilizer strip 34, the ticking border strip 42 will always have a firm backing in the interest of protecting this portion of the ticking strip from injury.

It is obvious that materials other than foam rubber or polyester could be used for the strips 12 or 34 so long as they had the same properties as foam rubber or polyester, without departing from the general spirit of the invention above set forth.

With the border stabilizer 12 or 34, it will of course be unnecessary to introduce a felt filler between the border ticking strip 11 and the spiral springs 3. In other words, the soft, yieldable stabilizer 12 or 34 will fully satisfy the requirements of the felt fillers heretofore interposed between the ticking strip 11 and the spiral springs 3.

It is obvious that various changes and modifications may be made to the details of construction without departing from the general spirit of the invention as set forth in the appended claims.

I claim:

1. A mattress consisting of an inner spring unit comprising upper and lower rectangular border forming wires, an upper layer of felt filling above the level of the upper wire, a lower layer of felt filling below the level of the lower wire, a plurality of spiral springs including outermost rows of spiral springs connected to one another and to said wires, a border stabilizer consisting of a strip of a soft elastic material having the properties of foam rubber, extending from the upper wire to the lower wire and nesting into the springs of the outermost rows of spiral springs, tape means attached to the outer face of said elastic material and extending beyond the upper and lower edges of said material, a border ticking strip extending around the outer face of said elastic material and attached to said tape means, an upper ticking sheet attached to the upper face of said upper felt layer, a lower ticking sheet attached to the lower face of said lower felt layer, and means attaching the edges of said upper and lower ticking sheets to the upper and lower edges of said border ticking sheet, respectively.

2. The stabilizer for the border of a mattress having an inner spring unit comprising upper and lower rectangular border-forming wires, an upper layer of felt filling above the level of said upper wire and a lower layer of felt filling below the level of said lower wire, a plurality of spiral springs including outermost rows of spiral springs connected to one another and to said wires, the stabilizer consisting of a soft elastic material having substantially the properties of foam rubber extending from the upper wire to the lower wire and nesting into the springs of the outermost rows, an elongated strip of ticking adjacent the outer face of said stabilizer, an upper sheet of ticking attached to the upper face of the upper layer of felt filling, a lower sheet of ticking attached to the lower face of the lower layer of felt filling, the edges of said sheets of ticking attached to the upper and lower edges of said strip of ticking, and means including strips extending from the upper and lower edges of said elastic material securing said elastic material to said sheets of ticking and to said strip of ticking.

3. The stabilizer as set forth in claim 2 in which said elastic material comprises two sections, one for each side of the mattress.

4. The stabilizer for the border of a mattress having an inner spring unit comprising upper and lower rectangular border-forming wires, an upper layer of felt filling above the level of said upper wire and a lower layer of felt filling below the level of said lower wire, a plurality of spiral springs connected to one another and to said wires, the stabilizer consisting of a soft elastic material having substantially the properties of foam rubber extending from the upper wire to the lower wire and nesting into the springs of the outermost rows, an elongated strip of ticking adjacent the outer face of said stabilizer, an upper sheet of ticking attached to the upper face of the upper layer of felt filling, a lower sheet of ticking attached to the lower face of the lower layer of felt filling, the edges of said sheets of ticking attached to the upper and lower edges of said strip of ticking, and means including strips extending from the upper and lower edges

of said elastic material securing said elastic material to said sheets of ticking.

5. The stabilizer for the border of a mattress having an inner spring unit comprising upper and lower rectangular border-forming wires, an upper layer of felt filling above the level of said upper wire and a lower layer of felt filling below the level of said lower wire, a plurality of spiral springs including outermost rows of spiral springs connected to one another and to said wires, the stabilizer consisting of a soft elastic material having substantially the properties of foam rubber extending from the upper wire to the lower wire and nesting into the springs of the outermost rows, an elongated strip of ticking adjacent the outer face of said stabilizer, an upper sheet of ticking attached to the upper face of the upper layer of felt filling, a lower sheet of ticking attached to the lower face of the lower layer of felt filling, the edges of said sheets of ticking attached to the upper and lower edges of said strip of ticking, and means including strips extending from the upper and lower edges of said elastic material securing said elastic material to said strip of ticking.

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