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2,766,465

VENTILATING OPENINGS AND CLOSURES THEREFOR FOR MATTRESSES

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Fig. 1

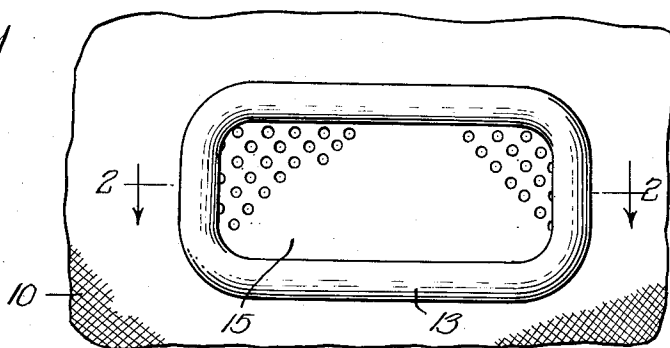


Fig. 7

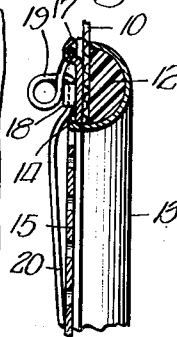


Fig. 2

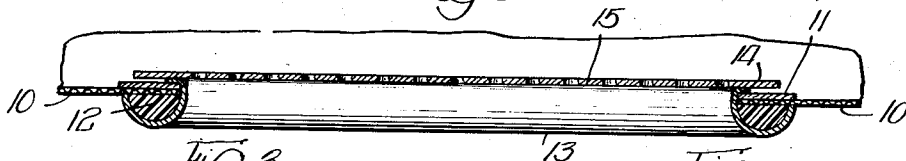


Fig. 3

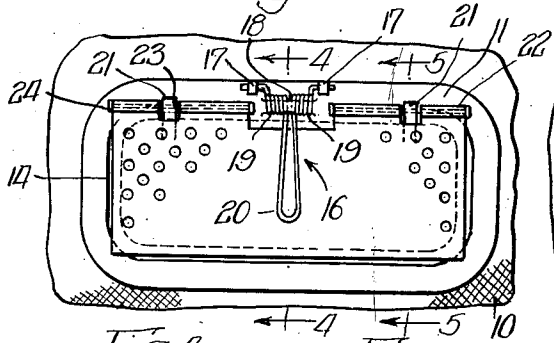


Fig. 6

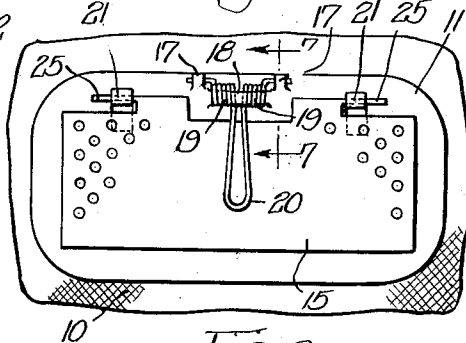


Fig. 4

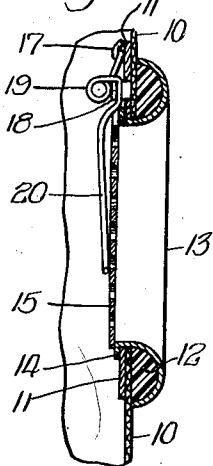


Fig. 5

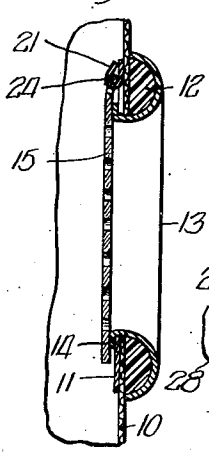


Fig. 8

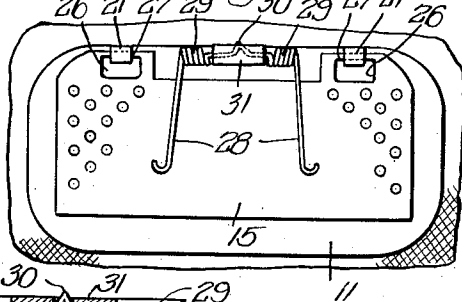
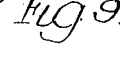


Fig. 9



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VENTILATING OPENINGS AND CLOSURES THEREFOR FOR MATTRESSES

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Application July 1, 1953, Serial No. 365,327

9 Claims. (Cl. 5—347)

This is a continuation in part of the co-pending application Serial No. 286,051, filed May 5, 1952, now Patent 2,712,656.

The present invention relates to mattresses and has for its main object the provision of an opening in a mattress casing with means for suitably lining the body portion of the casing adjacent the opening for providing a rigid frame thereby preventing the distortion of the casing material which otherwise would ensue due to the cutting out of the material for making the said opening. The opening aforesaid is made for the purpose of inserting therethrough a nozzle of a hose leading from a vacuum machine for the purpose of sucking out the air from the mattress casing or blowing the air into the mattress casing and with it removing the dust which has accumulated or has embedded itself within the material of the mattress casing and also for renewing or refreshing the air in the mattress casing.

Another object of the present invention is the provision of a tensioning closure hingedly connected with the said frame for normally maintaining the said opening closed, with means coacting with said frame and bearing against said closure for permitting the latter to yield inwardly of the casing during the insertion of the nozzle aforesaid.

A still further object of the present invention is the provision of a spring of a number of modified forms engaged with the said frame and bearing against the said closure for maintaining the latter in its normal closed position with relation to the said opening.

A still further object of the present invention is the provision in the frame aforesaid of a suitable anchoring means whereby one end of the spring aforesaid may be anchored and easily attached during the assembly of the device.

Other objects of the present invention are specified in my said patent.

With the above general objects in view and others that will appear as the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawing and pointed out in the appended claims.

In the drawing forming a part of this application, and in which like designating characters refer to corresponding parts throughout the several views:

Fig. 1 is a face elevational view of a portion of a mattress casing having an opening lined with a frame with the closure in its operative position normally closing the said opening;

Fig. 2 is an enlarged cross sectional view on line 2—2 of Fig. 1;

Fig. 3 is the elevational view looking from the inside of the mattress casing showing the frame, the closure hingedly connected therewith, and a spring connected with the frame and bearing against the closure for maintaining it in contact with the said frame, thereby normally closing the opening defined by said frame;

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Fig. 4 is a cross sectional view taken on line 4—4 of Fig. 3;

Fig. 5 is a cross sectional view taken on line 5—5 of Fig. 3;

Fig. 6 is a similar view to that of Fig. 3, showing however a modified form of a hinge connecting the closure with the frame;

Fig. 7 is an enlarged cross sectional view taken on line 7—7 of Fig. 6, which view is almost identical with that of Fig. 4;

Fig. 8 is an elevational view of the frame and the closure looking from the inside of the mattress casing, with a modified spring and modified anchoring means of the spring upon said frame, with another modification of a hinge upon which the closure is suspended upon said frame; and

Fig. 9 is an enlarged fragmentary view of the anchoring means for the spring upon said frame.

Referring in detail to the present drawing there is shown mattress casing 10, in which an opening of a substantially rectangular formation is made. Lining the inner face of the body portion of the mattress casing material adjacent the said opening is washer 11 of a substantially rectangular formation corresponding to the formation of the said opening made in the mattress wall. Superimposed upon the outer face of the body portion of the mattress wall adjacent said opening is filler strip 12 which is made of hard rubber, plastic or any other suitable material. Said filler strip 12 is substantially of the width of said washer 11 so that the two maintain the said body portion of the mattress wall adjacent said opening in a clamped relation.

The face of said filler strip 12 which contacts with the body portion of the mattress wall adjacent the said opening is of course flat, while the remaining wall of said filler strip 12 is of an arcuate formation on transverse cross section imparting to the said filler strip 12 a bead-like form.

Overlying the outer arcuate wall of said filler strip 12 is frame member 13 which is of arcuate formation corresponding to the formation of the outer wall of said filler strip 12. The outer edge of said frame member 13 remains in contact with the outer face of the mattress wall, while the inner edge is extended inwardly of the mattress in a transverse relation with the mattress wall and said washer 11 and thereupon is bent away from the opening defined by the said inner edge of said frame member 13, effecting lip 14 which overlies the face of said washer 11 which is disposed inwardly of the mattress, as is clearly seen in Figs. 3, 4 and 5. When said lip 14 is firmly pressed against the adjacent face of said washer 11 the adjacent body portion of the mattress fabric will be firmly clamped between the outer arcuate portion of said frame member 13, filler strip 12 and said washer 11, thereby preventing any distortion of the mattress wall adjacent the frame which includes said washer 11, filler strip 12, frame member 13 and lip 14.

Designed for closing the said opening made in the mattress wall and lined by said frame is closure 15, which may be made of metallic perforated plate.

Referring more particularly to the showing in Figs. 3 to 7, inclusive, said closure 15 normally remains in contact with said lip 14 for maintaining the said opening closed, due to the action thereon by tensioning spring generally indicated in Fig. 3 by 16.

One of the longer outer edges of said washer 11 is indented at two points to effect a pair of outwardly projecting lugs 17. Intermediately of said lugs 17 and in a spaced relation with the edge of said washer 11 the latter is further indented to define an outwardly struck strip 18.

Said spring 16 is made out of a single strand of wire,

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the two ends of which enter said lugs 17. When said lugs 17 are depressed, as shown in Figs. 4 and 7, said ends of spring 16 will be clamped within said lugs 17 in order to affix the ends of said spring to said washer 11. Adjacent each of its ends said spring 16 is wound a number of times to define coils 19. The portion of the wire strand leaving said coils 19 is formed into an oblong loop 20, disposed intermediately of said coils 19. Said loop 20 is extended through the space defined by said strip 18 and the body portion of said washer 11 in order that the free end of said loop 20 may fully bear against said closure 15 and maintain it in a closed relation with the opening defined by the said frame, and in contact with lip 14. In that operative position of said spring 16 coils 19 overhang said strip 18, the said coils being in a contactual relation with the exposed face of said strip 18, with the strip impinged between said coils and the strands which form said loop 20, as is clearly seen in Figs. 4 and 7.

In Fig. 3 one form of hinge connection between said closure 15 and washer 11 is shown. The same includes a pair of hinge members 21 struck out from the body of said washer 11. One of the longer edges of said closure 15, adjacent each end thereof, is provided with hinge loop 22, notched as at 23 to receive therewithin the hinge members 21. Pins 24 passed through hinge loops 22 and said hinge members 21 provide pivotal hinge connection for said closure 15 with said washer 11.

In Fig. 6 a modified form of the hinge connection for closure 15 is shown. There closure 15 at its longer edge, and adjacent each end, is notched to define pintle 25. The two pintles 25 enter hinge members 21 while the same are still in an open undepressed condition. When said pintles 25 are seated within said hinge members 21 the latter are then depressed similarly to the showing in Fig. 5.

Another modification of the hinge connection between said closure 15 and washer 11 is shown in Fig. 8 wherein closure 15 adjacent each of its ends is provided with opening 26, which effects adjacent the edge of closure 15 a narrow strip 27 which is in effect the hinge pintle. Hinge members 21, before they are looped around said pintles 27 are extended through openings 26 and thereupon looped around said pintles 27.

Another modification of the hinge connection between said closure 15 and washer 11 is shown in Fig. 8 wherein closure 15 adjacent each of its ends is provided with opening 26, which effects adjacent the edge of closure 15 a narrow strip 27 which is in effect the hinge pintle. Hinge members 21, before they are looped around said pintles 27 are extended through openings 26 and thereupon looped around said pintles 27.

Figs. 8 and 9 show a modification of the construction of the tensioning spring and its mounting means upon said washer 11. The two ends 28 of the spring bear against closure 15. At some distance from the free terminations of the ends of said spring a number of windings are made to form a coil 29 adjacent each of said ends 28 of the spring. Said coils 29 are substantially at a right-angled relation with said ends 28. The wire strand portion intermediately of coils 29 has tooth 30 formed therein. Said tooth 30 is of an inverted V-shaped formation. Extending from the free edge of said washer 11 is lip 31, which is provided adjacent its base with notch 32 into which the apex of said tooth 30 is inserted. Said lip 31 is disposed between said coils 29. When said lip 31 is folded upon the face of washer 11, as seen in full lines in Fig. 8, and dotted lines in Fig. 9, the strand portion of the wire intermediately of coils 29 will be firmly clamped between the body of said washer 11 and lip 31, tooth 30 preventing any rotary swivelling movement of coils 29 and of the portion of wire strand intermediately thereof. By virtue of the fact that said tooth 30 remains within notch 32, coils 29 and the strand portion of the

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wire intermediately thereof will be prevented from a longitudinal shifting movement.

As is obvious coils 19 and 29 impart to loop 20 and ends 28, respectively, a sufficient degree of tension to cause closure 15 to close automatically when a vacuum hose nozzle piece has been withdrawn from the opening defined by the said frame, being at the same time sufficiently resilient to permit angular shifting of closure 15 upon its hinge to an open position when forced by the nozzle piece.

If the spring shown in Fig. 3 is cut at the point of the apex of loop 20, or if spring of Fig. 8 is cut at the point of the apex of tooth 30, then in either event the spring will be of a simplified construction, each made of a single strand of material with a coil intermediately of its ends, with one end connecting with washer 11 and the other end thereof bearing against closure 15. Such a spring would work equally well, and the showing in the drawing is a duplication of such a spring.

As is obvious closure 15 may be entirely eliminated, the same not being absolutely necessary, because the opening made by the frame 13 may be left optionally open.

While there is described herein a preferred embodiment of the present invention, it is nevertheless to be understood that minor changes may be made therein without departing from the spirit and scope of the invention as claimed.

What I claim as new is:

1. In a mattress including a casing, said casing having an opening, a washer superimposed upon the face of the marginal portion of said casing adjacent said opening, means for maintaining said washer in a connected relation with said marginal portion of said casing adjacent said opening, and a closure hingedly connected to said washer for normally maintaining said opening closed.

2. In a mattress including a casing, said casing having an opening, a washer superimposed upon the face of the marginal portion of said casing adjacent said opening, means for maintaining said washer in a connected relation with said marginal portion of said casing adjacent said opening, a closure hingedly connected to said washer, and tensioning means connected with said washer and contacting with said closure for normally maintaining the latter in a closed position with relation to said opening.

3. In a mattress including a casing, said casing having an opening, a washer superimposed upon the face of the marginal portion of said casing adjacent said opening, means for maintaining said washer in a connected relation with said marginal portion of said casing adjacent said opening, a closure hingedly connected to said washer, a lug formed in said washer, and a spring made of a single strand of material, said spring including a coil intermediately of its ends, one end of said spring being engaged by said lug while the opposite end thereof bearing against said closure for normally maintaining the latter in a closed position with relation to said opening.

4. In a mattress including a casing, said casing having an opening, a washer superimposed upon the face of the marginal portion of said casing adjacent said opening, means for maintaining said washer in a connected relation with said marginal portion of said casing adjacent said opening, a closure hingedly connected to said washer, a spring, said spring being formed out of a single strand of material, and means carried by said washer for engaging one end of said spring, the opposite end of said spring bearing against said closure for normally maintaining the latter in a closed relation with said opening.

5. In a mattress including a casing, said casing having an opening, a washer superimposed upon the face of the marginal portion of said casing adjacent said opening, means for maintaining said washer in a connected relation with said marginal portion of said casing adjacent said opening, a closure hingedly connected to said washer, and a tensioning spring interconnected between said washer and said closure, said tensioning spring bearing against said closure for normally maintaining the latter in a closed relation with said opening.

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6. In a mattress including a casing having an opening therein, a washer superimposed upon a face of the casing surrounding the opening, means for securing the washer to the casing, a closure for said opening, a loop secured to the washer and offset therefrom, and a pintle connected with the closure and extending through the loop forming a hinged connection between the closure and the washer.

7. In a mattress including a casing having an opening therein, a washer superimposed upon a face of the casing surrounding the opening, means for securing the washer to the casing, a closure for said opening, means forming a hinged connection between the closure and the washer, a member formed integrally with the washer and outstruck therefrom, a coiled spring extending intermediate the ends thereof behind said outstruck member and having one end thereof bearing on the closure and the opposite end thereof bearing on the washer and yieldably urging the closure in closed relation with said opening.

8. In a mattress including a casing having an opening therein, a washer superimposed upon a face of the casing surrounding the opening, means for securing the washer to the casing, a closure for said opening, means forming a hinged connection between the closure and the washer, an outstruck strip formed integral with the washer, a lug secured on the washer adjacent said strip, a spring

member extending bodily behind said outstruck strip and connected at one end thereof with the lug and having the opposite end thereof bearing on the closure normally urging the closure in closed relation over the opening.

9. In a mattress including a casing having an opening therein, a washer superimposed upon a face of the casing surrounding the opening, means for securing the washer to the casing, a closure for said opening, means forming a hinged connection between the closure and the washer, an outstruck strip formed integral with the washer, a lug secured on the washer adjacent said strip, a spring member extending bodily behind said outstruck strip and connected at one end thereof with the lug and having the opposite end thereof bearing on the closure normally urging the closure in closed relation over the opening, said spring member having a coil formed therein intermediate its ends and overlying the front of the outstruck strip bearing thereon.

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