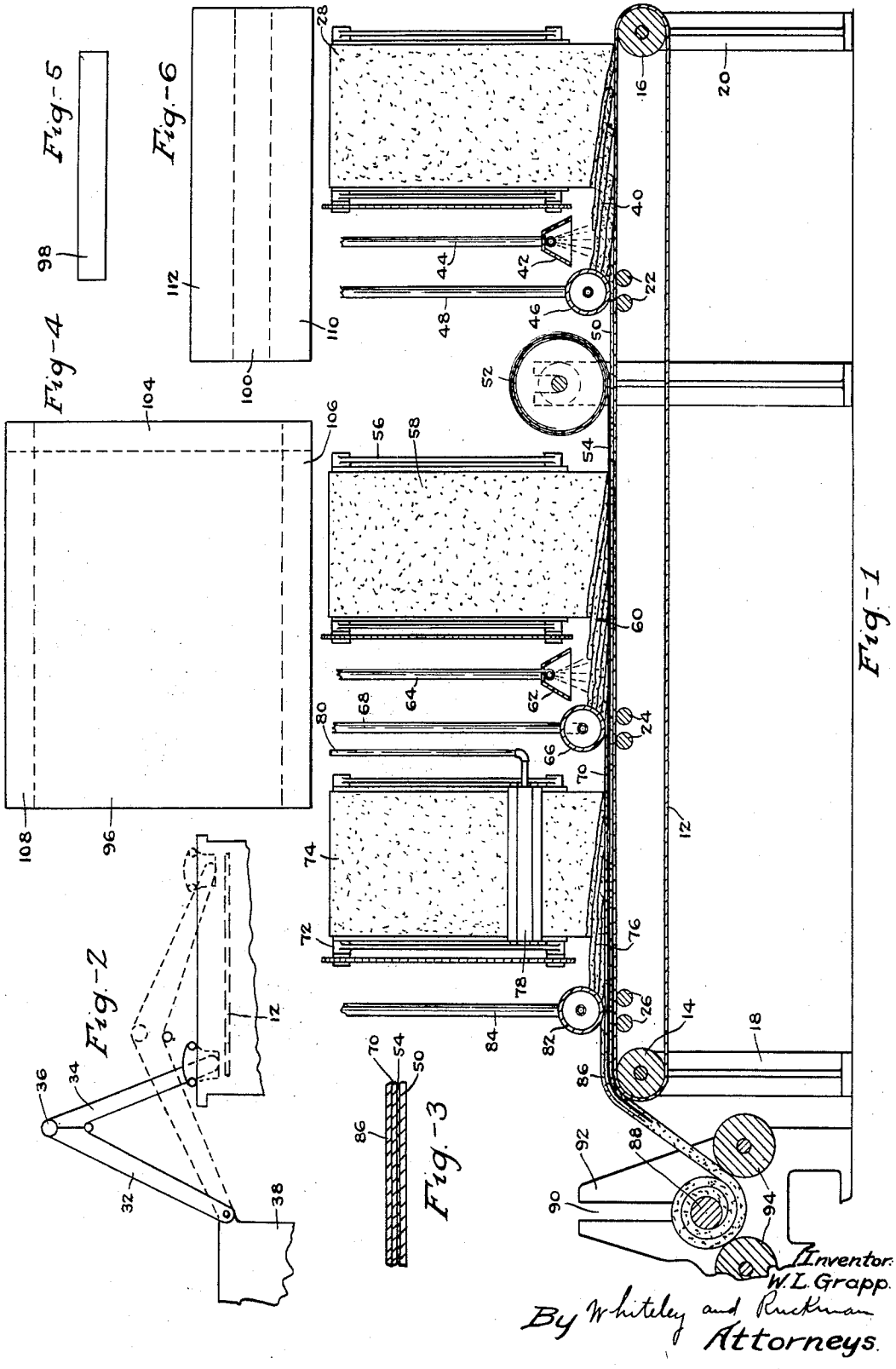
Jan. 9, 1934. W. L. GRAPP 1,942,693

MATTRESS AND THE LIKE AND PROCESS OF MANUFACTURING THE SAME

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Jan. 9, 1934. W. L. GRAPP 1,942,693

MATTRESS AND THE LIKE AND PROCESS OF MANUFACTURING THE SAME

Filed Sept. 28, 1928 2 Sheets-Sheet 2

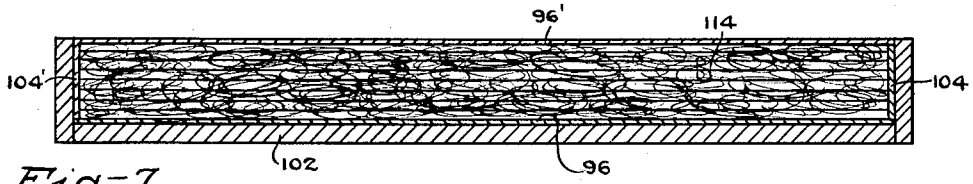


Fig-7

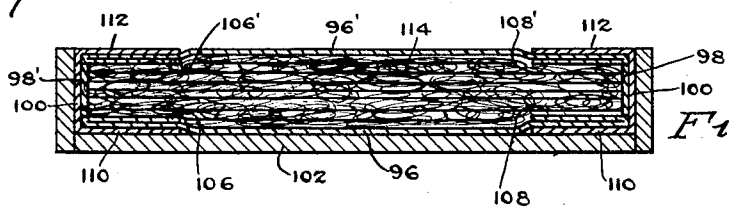


Fig-8

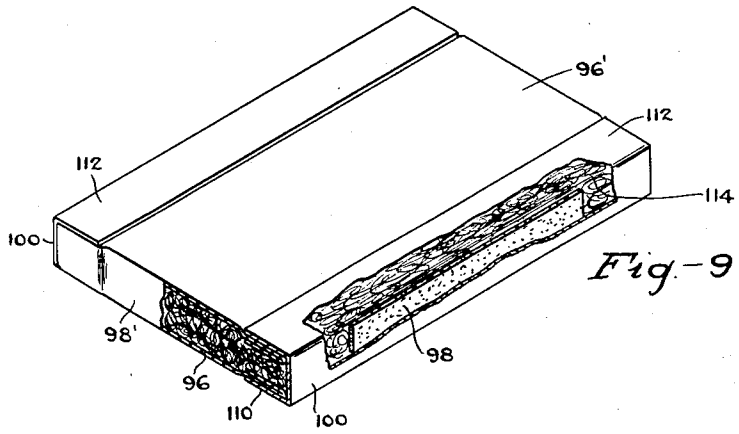


Fig-9

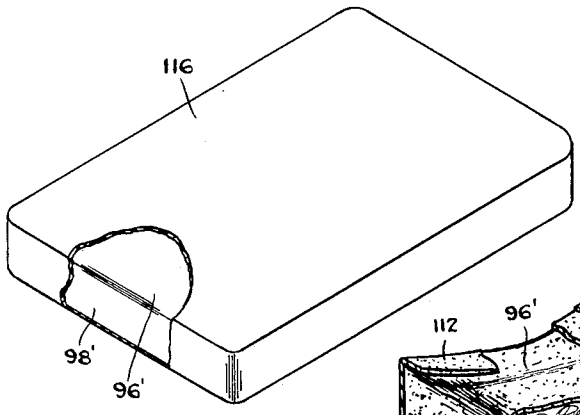


Fig-10

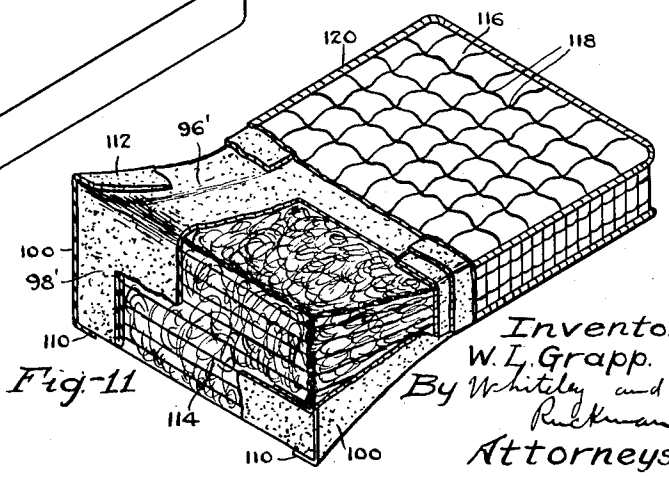


Fig-11

Inventor
W. L. Grapp.
By Whitley and Ruckman
Attorneys.

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UNITED STATES PATENT OFFICE

1,942,693

MATTRESS AND THE LIKE AND PROCESS OF MANUFACTURING THE SAME

William L. Grapp, Belgrade, Minn.

Application September 28, 1928
Serial No. 308,981

2 Claims. (Cl. 5—355)

My invention relates to mattresses and the like, and processes of manufacturing the same. Mattresses which have heretofore been in common use have a tendency to pack on account of the rubbing or frictional action which occurs as the result of getting into and out of bed coupled with the heat and moisture given off from the body. Furthermore, people commonly sit down on the edge of the bed while dressing and undressing instead of sitting on a chair. This throws the entire body weight on about a foot and a half square of the mattress while mattresses are constructed to carry only about fourteen pounds per square foot of body weight in lying position. An object of my invention is to provide a reinforced construction of both sides of the mattress with insulated buffing material to take care not only of the added weight when a person is sitting on the side or edge of the mattress but also to prevent packing of the mattress as the result of the rubbing or frictional action in connection with the heat and moisture of the body previously referred to. In the construction of my improved mattress, I have developed a reinforced insulated buffer which prevents the friction or rubbing action from being transmitted to and the body heat or moisture from getting into the center or buoyant felt material of the mattress. This insulated buffer is of a semi-tough reinforced texture and acts as a binder, and furthermore, spreads the carrying power of the inner felt to three or more times what it is without the buffer. The insulated buffer is preferably made of a cotton mixture varying according to the requirements necessary to produce the results desired, the quality being controlled by the price of the mattress. The insulated buffer is made by a process which duplicates the action that takes place in actual use of the mattress in regard to body heat and humidity and friction. Mattresses are ordinarily made about six inches in thickness and I have found that ordinary mattresses become packed so that their thickness is reduced from one-half inch to three inches. In order to prevent this packing, I employ the insulated buffer previously referred to, this buffer being compressed to a semi-hardness so that it will not be compressed any further by the said action of the heat, friction and moisture. Therefore, when this buffer is placed around the inner filling of fluffy material and the structure thus built up is placed in the mattress, tick or covering, the buffer cannot itself be packed any further and serves to protect the inner felt against causes of packing, previously referred to such as heat, friction and moisture. This keeps the mattress under all kinds of usage practically to its original shape and thickness since the construction of the buffer makes it impossible for heat and moisture to go through into the inner felt. Because of this fact, the mattress can be washed and cleaned without any deterioration of the inner buoyant felt since I contemplate encasing the mattress in a hard twisted, woven mattress covering dyed with indanthrene dyes which makes it practically sun-proof and water-proof. It is to be understood that my buffer may be employed in connection with cushions, couch pads, day-bed mattresses, couch mattresses, crib and juvenile mattresses, inner spring mattresses, parlor furniture upholsterings, and automobile upholsterings; in fact, it may be employed in connection with any articles of this general nature which are subjected to body heat, friction and moisture.

The full objects and advantages of my invention will appear in connection with the detailed description, and the novel features of my inventive idea will be particularly pointed out in the claims.

In the accompanying drawings which illustrate the application of my invention in one form,—

Fig. 1 is a view in vertical longitudinal section showing an apparatus used in carrying out my process of forming the buffer. Fig. 2 is a detail view of a portion of the apparatus shown in Fig. 1 and taken at right angles thereto. Fig. 3 is a fragmentary view showing the layers of the insulating buffer produced by the aparatus. Figs. 4, 5, and 6 are plan views showing the shape of different pieces which are cut from the insulating material to produce the buffer. Fig. 7 is a view in longitudinal section showing how the mattress is assembled in a filling box. Fig. 8 is a view taken at right angles to Fig. 7. Fig. 9 is a perspective view of the formed mattress with portions broken away. Fig. 10 is a perspective view showing the formed mattress placed inside of a mattress covering. Fig. 11 is a perspective view of the mattress after it has been tufted and stitched with portions broken away to show inner construction.

Referring to the drawings and first more particularly to Figs. 1 and 2, the numeral 12 designates an endless conveyor which travels around rollers 14 and 16 supported by standards 18 and 20. The upper stretch of this conveyor travels toward the left as viewed in Fig. 1, and is supported at intervals by pairs of rollers 22, 24, and 26. At the right hand end as shown in Fig. 1, a camel back device receives a web 28 as it comes

from a carding machine. As will be understood from Fig. 2, the camel back device consists of two members 34 and 32 jointed together at 36. The two members are caused to alternately assume the humped-up position shown in full lines and depressed position shown in dotted lines, so that the web is laid across the conveyor 12 in overlapping position as shown in Fig. 1 to form laid material 40, it being understood that the conveyor travels forwardly as the web is being laid thereon back and forth. The laid material passes underneath a humidifier hood 42 which is supplied with steam or moisture through a pipe 44. The laid material is then compressed by passing underneath a hollow roller 46 supplied with steam through a pipe 48. The roller 46 which is backed up by the pair of rollers 22 is preferably given a reciprocating motion axially in order to apply friction to the laid material and aid in the compressing action thereon, this laid material being compressed as indicated at 50. This compressed portion passes underneath a roller 52 which places thereon a strip 54 of muslin or similar thin fabric. The portion supplied with this fabric now passes underneath a second camel back device 56 similar to that already described and which lays a web 58 upon the thin fabric 54 to form thereon a laid material 60. This laid material passes underneath a humidifier hood 62 which is supplied with steam or moisture through a pipe 64. The laid material is compressed by passing underneath a hollow roller 66 supplied with steam through a pipe 68. The roller 66 which is backed up by the pair of rollers 24 is preferably given a reciprocating motion axially in order to aid in the compressing action on the laid material which is compressed as indicated at 70. This compressed portion now passes underneath a third camel back device 72 similar to that already described and which lays a web 74 thereon to produce a laid material 76. In this case, however, the web 74 itself is shown as subjected to the action of steam or moisture by means of a humidifier hood 78 which is supplied through a pipe 80. The laid material is compressed by passing underneath a hollow roller 82 supplied with steam through a pipe 84 which heats it to substantially body heat. The roller 82 which is backed up by a pair of rollers 26 may be given a reciprocating motion axially in order to aid in the compressing action of the laid material which is compressed as indicated at 86. The composite structure which is thus built up may be wound up on a roller 88, the trunnions of which ride in slots 90 formed in fixed supports 92 at the two ends of the roller. A pair of rollers 94 engage the underside of the built-up structure and by their rotation cause it to be wound up on the roller 88. The appearance of the built-up structure is shown in Fig. 3. Pieces of suitable size to form the insulated buffer may be readily cut from the built-up structure. Two like pieces 96 shown in Fig. 4 are cut to form the top and bottom, and two like pieces 98 shown in Fig. 5 are cut to form reinforcements for the two edges, while two like pieces 100 shown in Fig. 6 are cut to form side members. In making the mattress, a filler box 102 shown in Figs. 7 and 8 is used. One of the pieces 96 is placed in the bottom of this box, one end of this piece indicated at 104 being turned upwardly so as to fit inside an end wall of the box as shown in Fig. 7. The two side margins 106 and 108 are turned against the body portion of the piece 96 as shown in Fig. 8. The two pieces 100 are placed within the two side walls respectively of the box, one side margin 110 fitting underneath the bottom piece 96 as shown in Fig. 8, the other side margin 112 being left extending upwardly until the box has been filled. The short strips 98 are however, put in place inside and midway of the length of the pieces 100 as will be understood from Figs. 8 and 9. After the proper amount of fluffy filling material 114 has been put in, the top member 96' is placed over the filling, the end 104' being turned down so as to be located oppositely to the end 104 of the piece 96. The side margins 106' and 108' are folded against the body portion of the piece 96' as shown in Fig. 8 and the margins 112 of the pieces 100 are folded down over the top piece 96'. The mattress thus built up is removed from the box 102 into a mattress casing 116. The character of this casing or covering has been described previously. The mattress is then tufted as indicated at 118 in Fig. 11 and is side-stitched while a roll edge 120 is produced. For the purpose of manufacturing the mattress with a satisfactory and reliable roll edge, the compressed felt pieces 100 are placed along both sides, thus providing a sufficient amount of the buffer to work with as a filling for the roll edge. If this were not done, then due to the facts that the inner bouyant felt is very fluffy and very liable not to be put in straight and even along the edge when placed in the filler box, there would be liability of leaving hollow spots where little or no cotton would be caught in the roll edge construction.

I claim:

1. A mattress and the like comprising a filling of fluffy material and a compressed insulating buffer completely surrounding said filling.

2. A mattress and the like comprising a filling of fluffy material, a compressed insulating buffer completely surrounding said filling, and a covering of washable, non-fadeable fabric outside of said buffer.

WILLIAM L. GRAPP.