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FIRMNESS ADJUSTMENT FOR MATTRESSES

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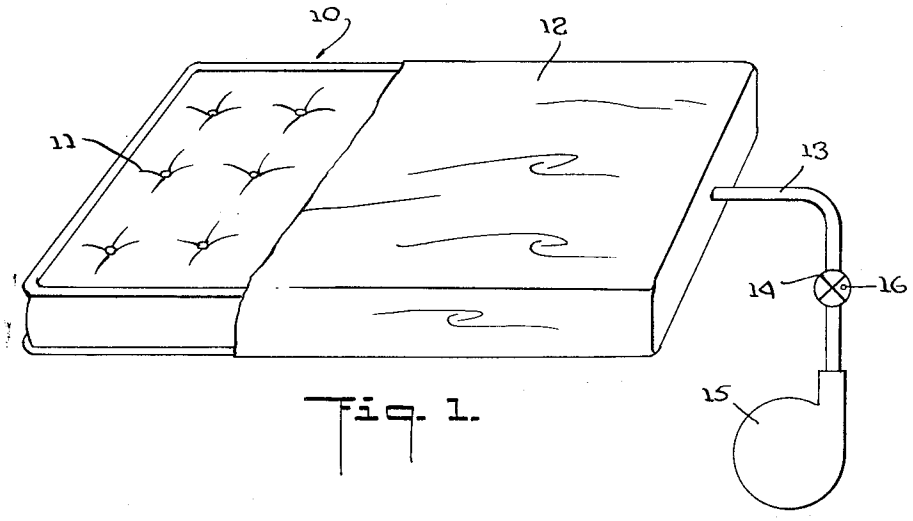


Fig. 1.

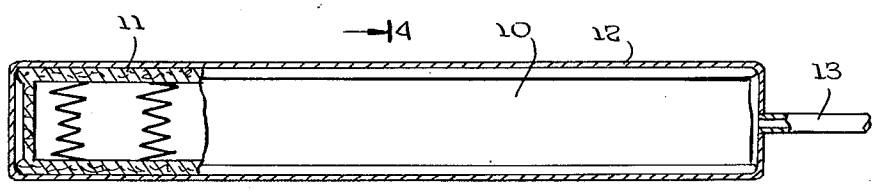


Fig. 2.

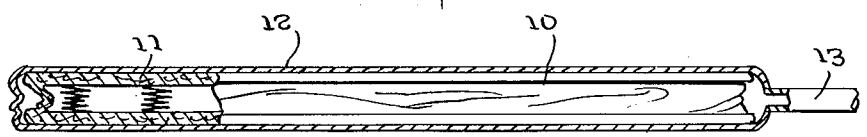


Fig. 3.

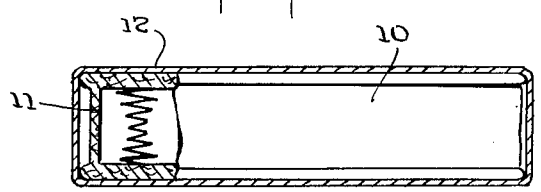


Fig. 4.

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FIRMNESS ADJUSTMENT FOR MATTRESSES

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4 Claims. (Cl. 5—348)

This invention relates to mattresses or the like.

It is well known that mattresses for bedding are generally supplied in different degrees of firmness. Some mattresses are extremely soft and yieldable while others are relatively rigid and unyielding. Very often a mattress requires a certain degree of rigidity for therapeutic purposes.

The problem of supplying mattresses with various degrees of firmness is a considerable one. This applies to manufacturers as will be evident but it is also troublesome to hotels and the like which are often required to satisfy the particular requirements or tastes of its guests in this respect.

With the foregoing in mind, I have devised a means to adjust the degree of firmness of any conventionally used mattress. By the term "conventionally used" I refer to mattresses fabricated principally of cotton, or hair or the like, inner spring mattresses of various types, and so-called foam rubber mattresses all having some degree of yieldability and resiliency. As a general matter, pneumatic or inflatable mattresses are not conventionally used for bedding.

My method of adjusting the firmness of a mattress comprises the provision of an air impermeable outer cover which embraces the mattress completely. A vacuum or suction is applied to the inside of this cover and it will be found that the outer cover thereupon compresses the mattress to an extent depending upon the degree of vacuum applied. A valve is employed to regulate the degree of vacuum and the source of vacuum may be an ordinary household vacuum cleaner. Such compression of the mattress produces commensurate rigidity as will be more fully set forth hereinafter.

The invention will be further understood from the following description and drawings in which:

Figure 1 is a perspective view of my apparatus as applied to a conventional coil spring mattress;

Figure 2 is a longitudinal section thereof;

Figure 3 is a view similar to Figure 2 but showing the mattress rendered firmer by being compressed; and

Figure 4 is a cross-sectional view as taken along the line 4—4 of Figure 2.

The mattress **10** is of conventional form. It is shown herein as comprising inner springs covered by conventional ticking **11** but the mattress may be of all fibrous material with or without inner springs, or may be of foam rubber. As is conventional, mattresses generally are yieldable and resilient for purposes of comfort.

Pursuant to my invention, a cover **12** is applied over the mattress. Cover **12** is of substantially the same dimensions as those of mattress **10** and it is fabricated of air impermeable material such as thin plastic sheeting or rubber so as to be airtight. In fact, even a heavy grade of cellophane could serve the purpose as long as it is formed into an airtight enclosure.

Connected to one wall of the rectangular cover **12** is an outlet pipe **13** which may be of rubber, plastic or metal. Secured to pipe **13** is a valve **14** which closes off the pipe or maintains it open. A source of vacuum **15** is connected to the input of valve **14** so that the hollow interior of cover **12** is subjected to vacuum to a degree depending upon the setting of valve **14**.

Vacuum source **15** may take the form of an electrical pump or indeed may be a simple household vacuum cleaner which, it has been found, produces sufficient vacuum to accomplish the intended purpose.

When it is desired to provide more firmness or rigidity in mattress **10**, the vacuum source **15** is operated while the valve **14** is initially closed. The valve is then opened so that the vacuum is applied to the hollow interior of the cover **12**. The cover **12** will then contract as illustrated in Figure 3 and it will produce pronounced compression of the mattress. Such compression will render the mattress firmer and more rigid.

In setting the air valve **14**, the user will open it to the point where proper rigidity is secured and he will then close it. This will maintain the desired degree of vacuum in the cover and will maintain the mattress in its set degree of rigidity. The user can thereafter vary this rigidity as suits his desires but ordinarily he will leave it at the selected degree of rigidity.

The next user, for example, if the mattress is in a hotel room, may desire less rigidity. It will not be necessary to operate the vacuum source **15** inasmuch as the valve **14** may be provided with a conventional bleed hole **16** which may be used to relieve the vacuum to any extent desired whereupon the valve can again be turned to the closed position. Of course, if the next user desires more rigidity he will operate the vacuum source **15**.

It will be seen from the foregoing that a user may adjust the degree of firmnes of a mattress in a very simple manner by compressing the same and maintaining it compressed by the vacuum system disclosed and that another user may just as simply adjust the firmness of the mattress to his own desires. Further, the device can be used in a retail store where a prospective mattress purchaser may employ the apparatus to select a precise mattress firmness which can then be duplicated in a conventional mattress.

What is claimed is:

1. A device for adjusting the firmness of a mattress comprising a flexible, air impermeable cover of substantially the same dimensions as the mattress to be treated, an outlet tube on said cover, valve means in said outlet tube, and a source of vacum connected to said valve means.

2. A device according to claim 1 and wherein said valve means is adjustable so as to adjust the degree of vacuum within said cover.

3. A device for adjusting the firmness of a mattress comprising a flexible, air impermeable cover, a resilient mattress within said cover and totally enclosed thereby, and means to apply a vacuum to the interior of such cover so as to cause it to contract and compress said mattress.

4. A device according to claim 3 and wherein said means comprises an outlet tube on said cover, a valve connected to said tube, and a source of vacuum connected to said valve, said valve being adjustable so as to regulate the degree of vacuum in said cover.

References Cited in the file of this patent

UNITED STATES PATENTS

1,271,472	Jakobson	July 2, 1918
2,068,134	Houghton	Jan. 19, 1937
2,328,083	Lineback	Aug. 31, 1943
2,559,956	Hay et al.	July 10, 1951