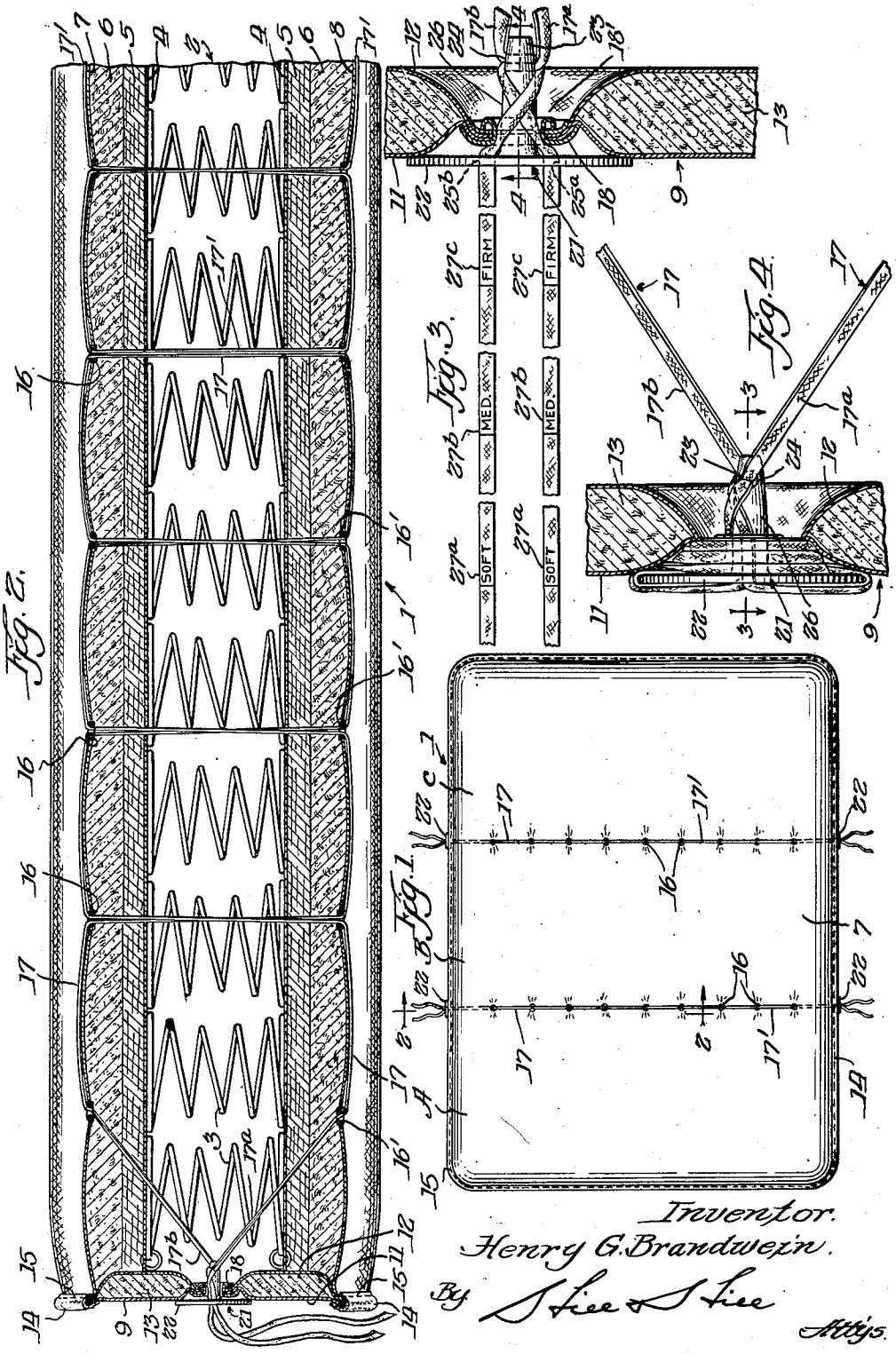
March 30, 1954 H. G. BRANDWEIN 2,673,357

ADJUSTABLE MATTRESS

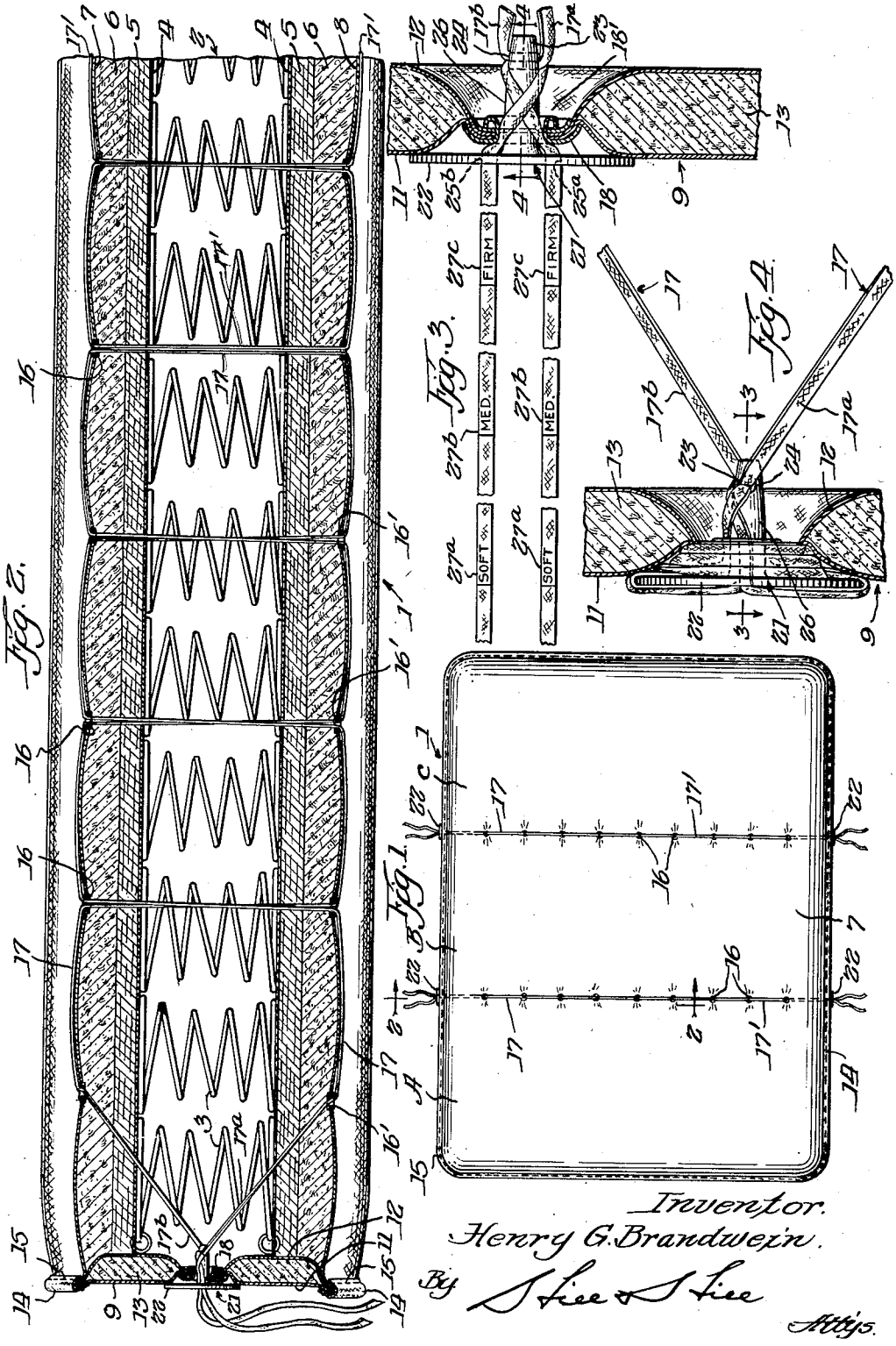
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ADJUSTABLE MATTRESS

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11 Claims. (Cl. 5—356)

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The invention relates generally to mattresses and more particularly to an adjustable type of mattress.

The invention has among its objects, the production of a mattress of the multi-cushion type in which the firmness or softness of the mattress may be readily adjusted to suit individual tastes.

Another object of the invention is the production of a multi-cushion mattress of double or full size for two persons, in which each longitudinal half of the mattress may be independently adjusted with respect to the other half, whereby the mattress may be adjusted for two persons of different sizes or to suit the individual taste of both persons using the mattress.

A further object of the invention is the production of such a mattress having novel means for retaining the mattress in any of its adjusted positions, and by means of which such adjustments may be easily and readily made.

A further object of the invention is the production of novel means for indicating the degree of firmness or softness of the various portions of the mattress.

Many other objects and advantages of the present invention will be obvious to those skilled in the art from the disclosures herein given.

In the drawings wherein like reference characters indicate like or corresponding parts:

Fig. 1 is a top plan view of a mattress embodying the present invention.

Fig. 2 is a sectional view of the mattress illustrated in Fig. 1 taken approximately on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged sectional view of the boxing illustrated in Fig. 2 taken approximately on the line 3—3 of Fig. 4, and illustrating the indicating means, and

Fig. 4 is an enlarged section view taken approximately on the line 4—4 of Fig. 3, illustrating the manner in which the cords may be wrapped around the retaining member.

Referring to the drawings and particularly to Figs. 1 and 2, 1 indicates generally a mattress having a resilient innerspring construction, indicated generally by the numeral 2 and comprising a plurality of spring coils 3, connected together by helicals or other suitable means to form a spring assembly. Positioned on the top and bottom faces of the spring assembly 2, are suitable sheets or members 4, illustrated in the present instance as fabric sheets or the like, upon which is placed suitable padding as for example, a layer of sisal 5, and a layer of cotton padding 6. Extending over the layers of padding and covering

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the same are top and bottom cover sheets 7 and 8 respectively, the peripheral edges of the cover sheets being connected by an edge boxing indicated generally by the numeral 9, and illustrated in the present instance as comprising an outer fabric strip 11 and inner strip 12, with padding 13 interposed therebetween. The top and bottom edges of the strip 11 are secured to the adjacent edges of the respective cover sheets by edge tapes 14 and stitching 15, or the like.

The upper and lower faces of the mattresses are divided into a plurality of cushions A, B and C, this being accomplished in the embodiment of the invention illustrated by two parallel rows of eyelets 16, with the rows of eyelets on the top of the mattress being vertically aligned with the rows of eyelets 16' on the bottom of the mattress, as clearly illustrated in Fig. 2. The mattress illustrated is thus divided into two end cushions or sections A and C, and an intermediate cushion or section B therebetween.

Each row of oppositely disposed eyelets on the top and bottom of the mattress are operatively connected by a pair of tapes or cords 17 and 17', the cords extending outwardly in opposite directions from the center eyelet to the edge boxing. Each tape passes through the top and bottom center eyelets of a row, outwardly across the top and bottom respectively of the mattress to the next adjacent eyelet, through the mattress to the opposite side thereof, thence outwardly along the face of the mattress to the next eyelet, this operation being repeated until the outermost eyelets of the rows are reached, at which point the end of the tapes are inserted into the respective end eyelets of the row and brought out through a grommet 18 carried by the boxing 9. It will be noted that each tape is laced through an even number of eyelets with both cords being laced through common central eyelets to achieve the desired results. It will be apparent that by drawing the ends of the tape outwardly through grommet 18, that the cover sheets, padding and spring construction may be compressed, or by permitting the tapes to loosen, the mattress may be permitted to expand along the boundaries of the adjacent cushions.

It will be particularly noted that each pair of tapes 17 and 17' in effect longitudinally divide the matttess into two zones, each adapted to accommodate a person, and by adjusting either of the respective tapes 17 or 17' at one longitudinal side of the mattress, that side may be made firm or soft, independently of the other zone or side of the mattress.

It will also be particularly noted that the two rows of eyelets on the top and bottom of the mattress, and the lacing therebetween produce well-defined cushions extending laterally across the mattress, with the boundaries of the cushions being defined by relatively uniform and continuous lines of depression as contrasted with a tufted mattress. Consequently, when the tapes are in a very firm position, a taut, smooth cover surface for each cushion is presented, whereas a mattress, tufted equally firm would present a very rough or bumpy surface that would be uncomforatable without an additional cover pad, quilt or the like over the mattress.

Means is provided for maintaining the respective tapes or cords under any desired tension, whereby the various portions of the mattress may be maintained in the desired position of adjustment. Such means is illustrated in Figs. 3 and 4 and comprises a button member indicated generally by the numeral 21 comprising a circular or disc-like portion 22, having a shank or stem 23 extending inwardly therefrom and adapted to be inserted in the grommet 18. The stem portion 23 of the member 21 is provided with a transversely extending hole 24 therein, and the circular disc portion 22 is provided with a pair of apertures 25*a* and 25*b* therein, the latter extending transversely to hole 24 of the stem with the axis of the holes 24 and 25 lying substantially in a common plane as clearly illustrated in Figs. 3 and 4. The end 17*a* of the tape 17, after passing inwardly through the outermost eyelet 16 in the cover sheet 7 of the mattress, passes through the hole 24 in the stem 23 after which it is partially wrapped around the stem and brought out through the hole 25*a* in the portion 22.

In like manner, the end 17*b* of the tape 17 is passed through the hole 24 of the stem but in the opposite direction to the end 17*a*, after which the tape is partially wrapped around the stem 23 over the adjacent portion of the end 17*a* and through the hole 25*b* in the disc 22. The outer surface of the stem 23 tapers outwardly as indicated at 26, the maximum diameter of the stem 23 and the amount of taper thereof, being so proportioned with respect to the thickness of the tape 17 and the diameter of the hole 18' in the grommet 18, to create a wedging action between the stem 23, the overlying portions of the tape ends and the inner periphery of the grommet. This frictional engagement, together with the interlacing of the tape ends through the hole 24 and apertures 25*a* and 25*b* results in a secure connection between the tape and the button, thus in effect securely connecting the ends of the tape to the boxing 9. The extreme free-ends of the tape extending outwardly from the button 21 may then be wrapped around the portion of the stem 23, extending outwardly from the grommet 18 as illustrated in Fig. 4, and if desired, the circular disc portion 22 of the button 21 may be suitably shaped to provide an outer convex face and an inner concave face, whereby the concavity of the inner face will provide additional space for the extreme ends of the tape, when wound around the stem 23.

If it is desired to soften the mattress, the tension on the lacing may be readily adjusted by withdrawing the button 21 from the grommet 18 and loosening the portions of tapes wrapped around the stem 23. In like manner if it is desired to increase the firmness of the mattress, the tape ends are merely loosened and pulled through the hole 24, drawing the tape ends outwardly through the button and subsequently allowing the button to return to the position illustrated in Figs. 3 and 4.

Likewise, if desired the tape ends may be provided with indicia for indicating the degrees of firmness. Such a construction is illustrated in Fig. 3 wherein the tapes are each provided with markings 27*a*, 27*b* and 27*c*, positioned at spaced intervals along the tapes, thus facilitating obtaining uniformity of adjustment, if desired, as well as aiding in making relative adjustments between the various sections. This indicia may be applied in any suitable manner as for example, by printing, weaving or otherwise marking the tapes.

It will be apparent from the above description, that the present invention provides a multi-cushion mattress construction, wherein the portions of the laterally extending cushions may be individually adjusted, and in addition provides means in a double size mattress, whereby the two longitudinal halves of the mattress may be independently adjusted to meet the individual requirements or tastes of both persons using the same.

I am aware that attempts have been made in the past to provide means for adjusting the firmness of a mattress, but such means have been directed to a tufted type of mattress as contrasted with a multi-cushion type of mattress and have thus required numerous adjustments throughout the mattress. Likewise, none of such constructions have achieved the results of the applicant's, wherein opposite longitudinal sides of the mattress may be individually adjusted independently of the other, whereby the mattress may be adjusted to conform to the tastes of two persons simultaneously using the same.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described, or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. In a cushion type mattress of the kind described adapted for adjustment substantially within the range from firm to soft, the combination of an inner-spring construction, top and bottom padding elements and top and bottom cover sheets positioned upon the respective faces of said construction, a boxing extending around the peripheral side and end edges of said construction, and secured to the adjacent edges of the respective cover sheets to inclose said construction, eyelet means comprising lines of spaced eyelets carried by each cover sheet and arranged in spaced parallel rows extending across and adapted for dividing the respective top and bottom cover sheets into a series of well defined cushion sections extending laterally across the mattress, each line of spaced eyelets forming a line of demarcation between various areas of surface of the cushion sections of the mattress, the boundaries of the cushion sections on the top of the mattress being aligned with the corresponding boundaries of the cushion sections on the bottom of the mattress, and lacing means connecting oppositely disposed parallel rows of said eyelet means operable to coact therewith to divide said mattress longitudinally thereat into a pair of laterally positioned zones adapted for in-

dividual adjustment substantially with the range from firm to soft, said lacing means comprising an independent lacing element for the lateral half of each pair of oppositely disposed rows of said eyelet means disposed in the respective zones, the free ends of each lacing element provided with indicia means indicating the range of adjustment from firm to soft, and being operatively and adjustably secured to the boxing defining the outer edge of that respective zone to adjust the yieldability of portions of the adjacent cushion sections of such zone independently of portions of the other cushion sections in such zone and of the cushion sections of the other zone.

2. In a cushion-type mattress of the kind described adapted for adjustment substantially within the range from firm to soft, the combination of an inner spring construction, top and bottom padding elements and top and bottom cover sheets positioned upon the respective faces of said construction, a boxing extending around the peripheral side and end edges of said construction and secured to the adjacent edges of the respective cover sheets to inclose said construction, a plurality of eyelets carried by each cover sheet arranged in spaced parallel rows extending across and dividing the respective top and bottom cover sheets into a series of well defined cushion sections extending laterally across the mattress, each row of eyelets forming a line of demarcation between various areas of surface of the cushion sections of the mattress, the boundaries of the cushion sections on the top of the mattress being aligned with the corresponding boundaries of the cushion sections on the bottom of the mattress, and lacing means passing through and connecting oppositely disposed eyelets, and extending between adjacent eyelets and the top and bottom cover sheets of the respective rows of said eyelets and operatively and adjustably secured to the boxing to adjust the yieldability of portions of the adjacent cushion sections independently of portions of the other cushion sections.

3. In a cushion-type mattress of the kind described adapted for adjustment substantially within the range from firm to soft, the combination of an inner-spring construction, top and bottom padding elements and top and bottom cover sheets positioned upon the respective faces of said construction, a boxing extending around the peripheral side and end edges of said construction and secured to the adjacent edges of the respective cover sheets to inclose said construction, a plurality of eyelets carried by each cover sheet, arranged in spaced parallel rows extending across and dividing the respective top and bottom cover sheets into a series of well defined cushion sections extending laterally across the mattress, the rows of eyelets on the top cover sheet of the mattress being aligned with the corresponding rows of eyelets on the bottom cover sheet each row of eyelets forming a line of demarcation between various areas of surface of the cushion sections of the mattress, and lacing means connecting oppositely disposed rows of eyelets operable to coact therewith to divide said mattress longitudinally thereat into a pair of zones adapted for individual adjustment substantially within the range from firm to soft, said lacing means comprising an independent lacing element for the lateral half of each pair of oppositely disposed rows of eyelets disposed in the respective zones, said lacing elements forming a substantially continuous line across the mattress, and

extending between adjacent eyelets over the top and bottom cover sheets, with the free ends of each lacing element passing through and operatively and adjustably secured to the boxing defining the outer edge of that respective zone, to adjust the yieldability of portions of the adjacent cushion sections of such zone independently of portions of the other cushion sections in such zone and of the cushion sections of the other zone, whereby the yieldability of each zone is adapted to be adjusted substantially within the range from firm to soft.

4. In a cushion type innerspring mattress adapted for adjustment substantially within the range from firm to soft, the combination of an inner spring construction, top and bottom padding elements and top and bottom cover sheets positioned upon the respective faces of said construction, a boxing extending around the peripheral side and end edges of said construction, and secured to the adjacent edges of the respective cover sheets to inclose said construction, eyelet means comprising lines of spaced eyelets carried by each cover sheet and arranged in spaced parallel rows extending across and adapted for dividing the respective top and bottom cover sheets into a series of well-defined cushion sections extending laterally across the mattress, each line of spaced eyelets forming a line of demarcation between various areas of surface of the cushion sections of the mattress, the boundaries of the cushion sections on the top of the mattress being aligned with the corresponding boundaries of the cushion sections on the bottom of the mattress, and lacing means connecting oppositely disposed parallel rows of said eyelet means to coact therewith, operable to divide said mattress longitudinally thereat into a pair of laterally positioned zones adapted for individual adjustment substantially within the range from firm to soft, said lacing means comprising an independent element for the lateral half of each pair of oppositely disposed rows of said eyelet means disposed in the respective zones, each element being operatively and adjustably secured to the boxing defining the outer edge of that respective zone, to adjust the yieldability of portions of the adjacent cushion sections of such zone independently of portions of the other cushion sections in such zone and of the cushion sections of the other zone, whereby the yieldability of each zone is adapted to be adjusted substantially within the range from firm to soft.

5. In a cushion type mattress of the kind described adapted for adjustment substantially within the range from firm to soft, the combination of an inner spring construction, top and bottom padding elements and top and bottom cover sheets positioned upon the respective faces of said construction, a boxing extending around the peripheral side and end edges of said construction, and secured to the adjacent edges of the respective cover sheets to inclose said construction, eyelet means comprising lines of spaced eyelets carried by each cover sheet and arranged in spaced parallel rows extending across and adapted for dividing the respective top and bottom cover sheets into a series of well-defined cushion sections extending laterally across the mattress, the boundaries of the cushion sections on the top of the mattress being aligned with the corresponding boundaries of the cushion sections on the bottom of the mattress, each line of spaced eyelets forming a line of demarcation between various areas of surface of the cushion sections

of the mattress, and lacing means connecting oppositely disposed parallel rows of said eyelet means to coact therewith, operatively and adjustably secured to the boxing to adjust the yieldability substantially within the range from firm to soft of portions of the adjacent cushion sections, independently of portions of the other cushion sections.

6. In a cushion type mattress of the kind described adapted for adjustment substantially within the range from firm to soft, the combination of an inner spring construction, top and bottom padding elements and top and bottom cover sheets positioned upon the respective faces of said construction, a boxing extending around the peripheral side and end edges of said construction, and secured to the adjacent edges of the respective cover sheets to inclose said construction, eyelet means comprising lines of spaced eyelets carried by each cover sheet and arranged in spaced parallel rows extending across and adapted for dividing the respective top and bottom cover sheets into a series of well-defined cushion sections extending laterally across the mattress, each line of spaced eyelets forming a line of demarcation between various areas of surface of the cushion sections of the mattress, the boundaries of the cushion sections on the top of the mattress being aligned with the corresponding boundaries of the cushion sections on the bottom of the mattress, lacing means connecting oppositely disposed parallel rows of said eyelet means to coact therewith, operatively and adjustably secured to the boxing to adjust the yieldability of portions of the adjacent cushion sections, independently of portions of the other cushion sections, and means carried by said lacing means for visually indicating the relative adjustments of portions of the respective cushion sections within the range of from firm to soft.

7. In a cushion-type mattress of the kind described adapted for adjustment substantially within the range of firm, medium, and soft, the combination of an inner-spring construction, top and bottom padding elements and top and bottom cover sheets positioned upon the respective faces of said construction, a boxing extending around the peripheral side and end edges of said construction and secured to the adjacent edges of the respective cover sheets to inclose said construction, a plurality of eyelets secured to each cover sheet and arranged in spaced parallel rows extending across and dividing the respective top and bottom cover sheets into a series of well defined cushion sections extending laterally across the mattress with the eyelets in each row being substantially uniformly spaced relative to each other, the eyelets of each row on the top of the mattress being vertically aligned with the eyelets of the corresponding row on the bottom of the mattress, each row of eyelets forming a line of demarcation between various areas of surface of the cushion sections of the mattress, and lacing means connecting vertically aligned eyelets of oppositely disposed rows with said lacing means extending between adjacent eyelets of each row at the outer surface of the respective cover sheets, and means comprising a grommet formed in the boxing and complementally formed means to the grommet for adjustably securing the free ends of the lacing means of each row to the boxing to adjust the yieldability, within the range of firm, medium, and soft, of portions of the adjacent cushion sections independently of portions of the other cushion sections.

8. In a cushion-type mattress of the kind described adapted for adjustment substantially within the predetermined ranges of firm, medium, and soft, the combination of an inner-spring construction, top and bottom padding elements and top and bottom cover sheets positioned upon the respective faces of said construction, a boxing extending around the peripheral side and end edges of said construction and secured to the adjacent edges of the respective cover sheets to inclose said construction, a plurality of eyelets secured to each cover sheet and arranged in spaced parallel rows extending across and dividing the respective top and bottom cover sheets into a series of well defined cushion sections extending laterally across the mattress with the eyelets in each row being substantially uniformly spaced relative to each other, the eyelets of each row on the top of the mattress being vertically aligned with the eyelets of the corresponding rows on the bottom of the mattress, each row of eyelets forming a line of demarcation between various areas of surface of the cushion sections of the mattress, and lacing means connecting vertically aligned eyelets of oppositely disposed rows with said lacing means extending between adjacent eyelets of each row at the outer surface of the respective cover sheets, and means carried by said lacing means for visually indicating the relative adjustments of portions of the respective cushion sections within the predetermined ranges of firm, medium, and soft.

9. A cushion-type mattress construction adapted for adjustment substantially within the range from firm to soft, comprising top and bottom cover sheets positioned upon the respective faces of said construction, a boxing extending around the peripheral side and end edges of said construction, and secured to the adjacent edges of the respective cover sheets to inclose said construction, eyelet means comprising lines of spaced eyelets carried by each cover sheet and arranged in spaced parallel rows extending across the mattress top and bottom cover sheets dividing the mattress into cushion sections, the respective rows on the top cover sheet being aligned with the rows on the bottom sheet, each line of spaced eyelets forming a line of demarcation between various areas of surface of the cushion sections of the mattress, and and lacing means connecting oppositely disposed parallel rows of said eyelet means, operable to divide said mattress longitudinally thereat into a pair of zones adapted for individual adjustment within the range of from firm to soft, said lacing means comprising an independent lacing element for the lateral half of each pair of oppositely disposed rows of said eyelet means disposed in the respective zones, the free ends of each lacing element being operatively and adjustably secured to the boxing defining the outer edge of that respective zone, to adjust the yieldability of portitons of the mattress of such zone independently of other portions of the mattress in such zone and in the other zone, whereby the yieldability of each zone is adapted to be adjusted substantially within the range from firm to soft.

10. A cushion-type mattress construction adapted for adjustment substantially within the range from firm to soft, comprising top and bottom cover sheets positioned upon the respective faces of said construction, a boxing extending around the peripheral side and end edges of said construction, and secured to the adjacent edges of the respective cover sheets to inclose said construction, eyelet means comprising lines of spaced

eyelets carried by each cover sheet and arranged in spaced parallel rows extending across the mattress top and bottom cover sheets dividing the mattress into cushion sections, the respective rows on the top cover sheet being aligned with the rows on the bottom sheet,each line of spaced eyelets forming a line of demarcation between various areas of surface of the cushion sections of the mattress, and lacing means connecting oppositely disposed parallel rows of said eyelet means, operable to longitudinally divide said mattress into a pair of laterally spaced zones adapted for individual adjustment within the range of from firm to soft, said lacing means comprising an independent element for the lateral half of each pair of oppositely disposed rows of said first means disposed in the respective zones, each element being operatively and adjustably secured to the boxing defining the outer edge of that respective zone, to adjust the yieldability of portions of the mattress of such zone independently of other portions of the mattress in such zone and in the other zone, whereby the yieldability of each zone is adapted to be adjusted substantially within the range from firm to soft.

11. The combination with a mattress having opposite faces which are adapted to be adjustable with respect to each other for adjusting the yieldability of the mattress within the range from firm to soft, of a set of fastening devices, each adjustably holding a cordlike member operatively threaded directly through openings in the opposite faces of the mattress for adjusting the yieldability of the mattress, each fastening device being inserted in an opening through which the cordlike member extends and including a shank portion of a size complemental to the respective opening, each shank portion tapering outwardly from its inner free end to an enlarged head portion and having an aperture adjacent its free end extending transversely to the axis thereof through which the cordlike member extends, said shank portion adapted for winding a portion of the cordlike member about the periphery thereof for snubbing the cordlike member, and the enlarged head portion formed at the other end of said shank portion covering the opening and provided with an aperture receiving the cordlike member.

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