

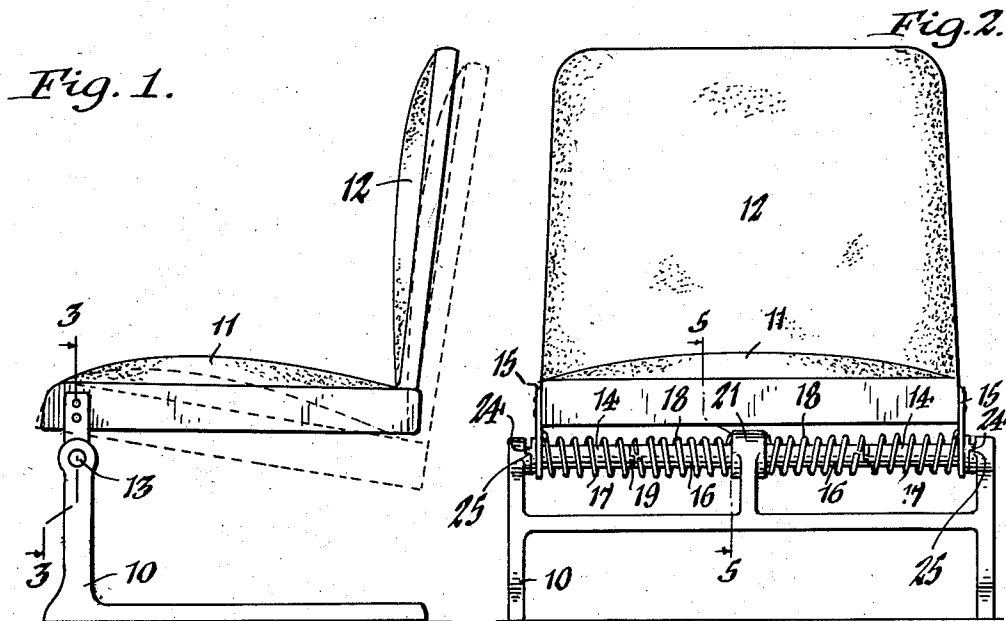
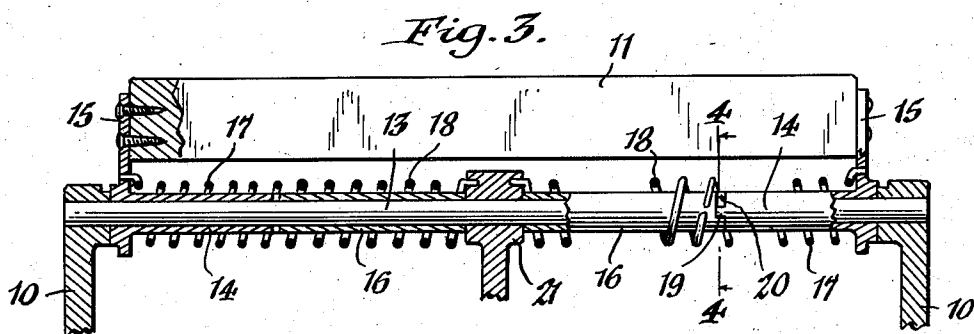
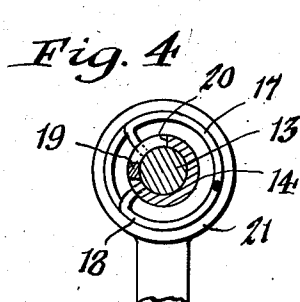
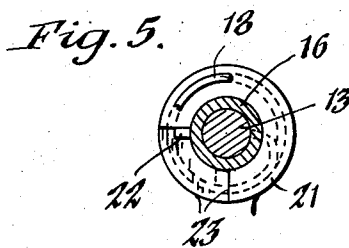
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SPRING MOUNTED CHAIR SEAT

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SPRING MOUNTED CHAIR SEAT

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6 Claims. (Cl. 155—55)

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This invention relates to certain new and useful improvements in spring mountings for chair seats and the like.

One of its objects is to provide a resilient seat mounting of this character which is so designed and constructed as to offer from a minimum to a maximum resistance in accordance with the weight of the individual imposed upon the seat.

A further object of the invention is to provide a resilient fulcrumed seat mounting composed of a plurality of springs of different or increasing resistance values which are so arranged as to successively come into operation to yieldingly resist the fulcruming action of the seat in response to varying increased weights imposed upon the seat.

Another object is to provide a resilient seat mounting which is simple, compact and inexpensive in construction and which affords maximum comfort to the occupant.

Other features of the invention reside in the construction and arrangement of parts hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1 is a side view of a chair embodying the spring mounting of my invention. Figure 2 is a front view thereof. Figure 3 is an enlarged vertical section taken on line 3—3, Figure 1. Figure 4 is an enlarged cross section taken on line 4—4, Figure 3. Figure 5 is an enlarged cross section taken on line 5—5, Figure 2.

Similar characters of reference indicate corresponding parts throughout the several views.

By way of example, my improved seat mounting has been shown in connection with a chair having a rigid base frame 10 of any suitable construction and cushioned or like seat 11 pivoted at its front end to side portions of the frame and resiliently supported to yield downwardly more or less as determined by the weight of its occupant and to return to its initial position when the occupant rises from the chair. The chair may also have a back portion 12 which may likewise be yieldingly supported. The seat-pivot consists of a horizontal shaft 13 fixedly supported at its ends in the side portions of the base-frame, while the seat 11 is connected to this shaft to fulcrum thereon through the medium of a sectional sleeve and spring assembly which permits the seat to yieldingly pivot more or less.

This assembly preferably consists of a pair of end sleeves 14 applied to the pivot-shaft and terminating at their outer ends in attaching flanges 15 secured to the side portions of the seat, so that these sleeves are free to pivot or turn

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about the pivot shaft 13 when the seat is occupied, and one or more pairs of intermediate sleeves 16 similarly mounted on such shaft and disposed in endwise or substantially abutting engagement with the adjoining companion sleeves. One pair or set of these intermediate sleeves has been shown in the drawings, but more may be employed as desired, the several sleeves being symmetrically disposed at opposite sides of the center of the seat. Associated with each end sleeve 14, and coiled about the same is a spring 17 of a certain resistance value, while associated with and coiled about each of the two intermediate sleeves 16 is a spring 18 of a greater resistance than the springs 17, the greater resistance springs being adapted to come into operation only at those times when the weight of the chair-occupant is such as to cause them to so respond, which would be subsequent to the time when the initial springs have been strained to a predetermined point.

Each end sleeve 14 is provided at its inner end with a longitudinally-extending lug or stop shoulder 19 and each of the intermediate sleeves 16 is recessed to provide resulting stop shoulders 20 at their opposing ends which cooperate with those of the end sleeves to couple or clutch such companion sleeves one to another at predetermined times in the movement of the seat to cause such sleeves to turn in unison about the pivot-shaft. During the initial movements of the seat the end sleeves are free to turn independently of the intermediate sleeves. Each spring 17 is joined at its outer end to the companion sleeve-flange 15 while its opposite end is connected to the opposing end of the intermediate sleeve 16. Each spring 18 is joined at one end to its companion sleeve 16 and at its other end to a bracket 21 rising from the base-frame and in which the central portion of the pivot-shaft is supported. Each sleeve 16 is limited in its travel by stop elements 22, 23 applied to the opposing ends of the sleeve and the bracket 21.

The seat is retained in its normal position, shown by full lines in Figure 1, by the springs 17, 18, companion stops 24, 25 being employed on the bracket 15 and seat frame 10 for limiting the upward pivoting action of the seat.

By this construction, when an initial load is imposed upon the chair seat the end sleeves 14 are caused to turn therewith about the pivot-shaft and the companion springs 17 are brought into operation to yieldingly resist the downward pivoting action of the seat. Should the weight of the individual be such as to depress the seat further and cause the sleeve-lugs 19 to contact the

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companion stop shoulders 20 on the companion sleeves 16, then the latter will become coupled to and turn jointly with the sleeves 14 and bring the stronger springs 18 into automatic operation to yieldingly resist further downward movement of the seat. At the start of this operation, the springs 17 will have reached a predetermined point in their subjected tension and will merely turn as a unit with both companion sleeves 14, 16, thereby being released from further strain when the next group of greater tensioned springs are brought into play.

I claim as my invention:

1. A chair having a resiliently supported seat, comprising a frame having a pivot-shaft mounted thereon, a seat fulcrumed to swing vertically on said shaft, a pair of end sleeves fixed to said seat and free to turn on said shaft, intermediate sleeves mounted on said shaft alongside said end sleeves, and two groups of springs applied to said sleeves, the springs of one group being coiled about the end sleeves and each connected at one end to its companion sleeve and at its other end to the adjoining intermediate sleeve, and the springs of the other group being coiled about the intermediate sleeves and each connected at one end to its companion sleeve and at its other end to said frame, the springs of one group being of a greater resistance value than the springs of the other group.

2. A chair having a resiliently supported seat, comprising a frame having a pivot-shaft mounted thereon, a seat fulcrumed to swing vertically on said shaft, a pair of end sleeves fixed to said seat and free to turn on said shaft, intermediate sleeves mounted on said shaft alongside said end sleeves, correlated coupling means applied to said sleeves for compelling their joint turning on said shaft at predetermined times and the independent turning of the end sleeves at other times, and springs coiled about and companion to said sleeves for yieldingly resisting the downward pivoting action of the seat, the springs companion to the end sleeves being of a less resistance value than the springs companion to the intermediate sleeves and each being connected at one end to its respective sleeve and at its other end to the adjoining intermediate sleeve, each spring associated with the intermediate sleeves being connected at one end thereto and at its other end to said frame.

3. A chair having a resiliently supported seat, comprising a frame having a pivot-shaft mounted thereon, a seat fulcrumed to swing vertically on said shaft, sets of two sleeves applied to said shaft to turn thereon, one of the sleeves of each set being secured to the seat and the opposing ends of the sleeves of a set having means thereon for releasably coupling them one to the other, complementary means on the other sleeve of each set and said frame for limiting the degree of its turning, and a plurality of sets of springs coiled about the companion sleeves with the springs of each set being of different resistance values, each lesser resistance spring of each set being connected at one end to the seat and at its other end to the next adjoining sleeve, and each of the remaining springs being connected at one end to its companion sleeve and at its other end to said

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frame and adapted for coupling engagement with the seat-attached sleeve to resist the downward yielding movement of the seat as determined by the load imposed thereon.

4. A chair having a resiliently supported seat, comprising a base-frame having a pivot-shaft mounted thereon, a seat fulcrumed on said shaft, and a two section sleeve and spring assembly applied to said shaft to permit the seat to yield more or less in accordance with the load placed thereon, one section of the sleeve being fixed to the seat to pivot therewith on the shaft and the other section of the sleeve being disposed alongside the first-named sleeve to turn jointly therewith or remain fixed relatively thereto, complementary inter-engaging elements at the opposing ends of said sleeve-sections to compel their joint turning at a certain time in the seat-movement, and springs coiled about said sections, one spring being connected at one end to the seat-connected sleeve-section and at its other end to the companion sleeve-section, and the other spring being connected at one end to said companion sleeve-section and at its other end to said base-frame.

5. A chair having a resiliently supported seat, comprising a frame having a pivot-shaft mounted thereon, a seat fulcrumed to swing vertically on said shaft, a pair of end sleeves fixed to said seat and free to turn on said shaft, intermediate sleeves mounted on said shaft alongside said end sleeves, means for releasably coupling said end and intermediate sleeves to turn as a unit at predetermined times, and independent springs of different resistance values coiled about said sleeves, respectively, and operative to resist the downward pivoting action of the seat in accordance with the load imposed thereon, the springs of the end sleeves being connected at one end thereto and at the opposite ends to the intermediate sleeves and the other springs being connected at their ends to the companion intermediate sleeves and said frame, respectively.

6. A chair having a resiliently supported seat, comprising a frame having a pivot-shaft mounted thereon, a seat fulcrumed to swing vertically on said shaft, a plurality of springs of different resistance values applied to said shaft and operatively connected to said seat to yieldingly resist its fulcruming action, and means applied to said pivot-shaft to turn thereon in response to the movement of the seat for operatively coupling the springs to cause them to resist the downward movement of the seat in accordance with an increased load imposed on the seat and to simultaneously relieve the springs of lesser resistance value from undergoing further strain during such period of increased load.

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