Nov. 5, 1957 L. P. CYMBAL 2,812,180

SPRINGBOARD

Filed Oct. 3, 1955

FIG. 1.

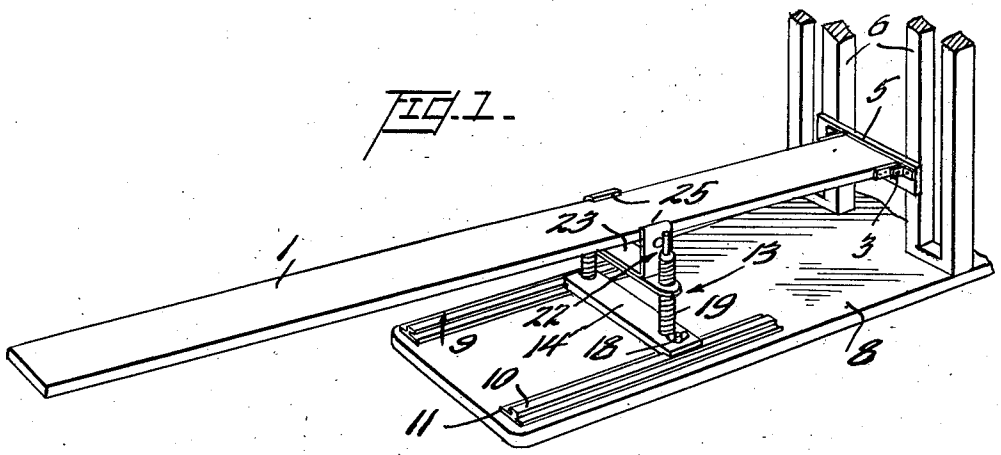


FIG. 2.

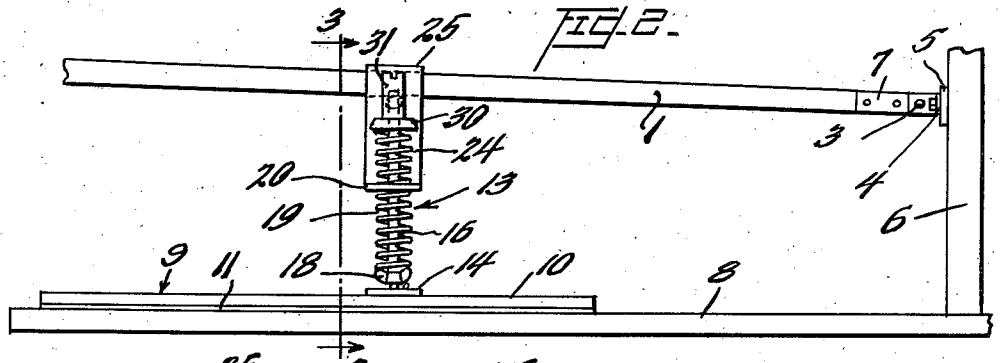


FIG. 3.

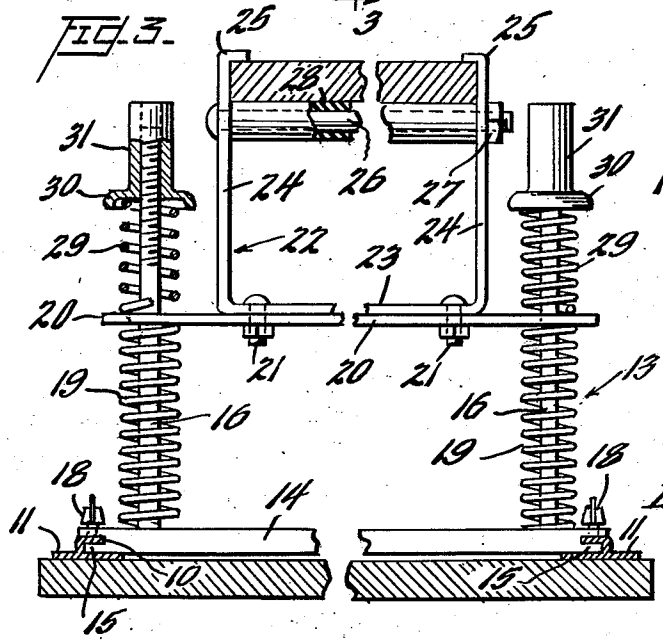
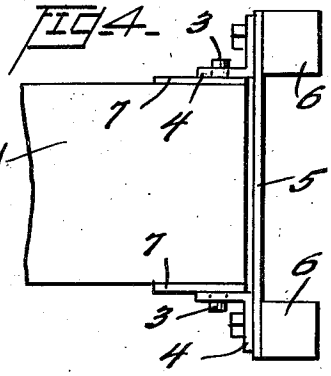


FIG. 4.



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SPRINGBOARD

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4 Claims. (Cl. 272—66)

This invention relates to an adjustable springboard of the type commonly used in diving and acrobatics.

It is well-known that in order to obtain best results from a spring board the resiliency of the board must vary in accordance with the weight of the user, and to this end it has been known in the past to provide means for adjusting the resiliency of a springboard either through adjustment of the stiffness of supporting springs or through adjusting the positions of a fulcrum about which the springboard is flexed.

In accordance with the present invention there is provided a simplified arrangement capable of adjustment throughout a wide range and consisting basically of a resilient supporting carriage adjustable longitudinally to various positions beneath a springboard which is anchored or hinged at one end.

In accordance with an important feature of the invention the resilient supporting carriage includes a clamp mechanism which is adjustably engageable with the springboard and is resiliently supported by the carriage, the carriage in turn being adjustably secured to and movable along a trackway and providing a means for resiliently connecting the springboard to the trackway.

In accordance with a further feature of the invention the clamp mechanism includes a horizontal roller disposed in supporting relation beneath the springboard to provide a vertical support for the board and to minimize frictional resistance of the board to longitudinal adjustment of the supporting carriage.

It is also a feature of the invention to provide vertically opposed spring means for supporting the said clamp in a balanced position of vertical adjustment together with a mechanism for simultaneously adjusting the tension of the opposed springs.

The foregoing features and advantages are obtained by the preferred embodiment of the invention illustrated in the accompanying drawings, in which:

Figure 1 represents a perspective view of a diving board constructed in accordance with the invention, the supporting frame of the diving board being shown fragmentarily;

Figure 2 represents a side elevation of the structure shown in Figure 1;

Figure 3 is a section on the line 3—3 of Figure 2; and

Figure 4 is a plan view of the hinged rear end portion of the diving board.

Referring now in detail to the drawings, the diving board 1 there shown is preferably a rectilinear wooden board which may be stiffly resilient in usual manner, or may, if desired, be quite stiff and rigid.

At its rear end board 1 is hinged to a supporting frame or structure for vertical movement about a horizontal axis defined by the hinge pin or pintle 3. The horizontal pintle 3 in the preferred embodiment is supported between angle brackets 4 respectively bolted or otherwise secured on a metal cross piece 5 fixedly supported between frame parts or standards 6—6, of the supporting structure. Standards 6—6 are rigidly affixed to a horizontal base or

platform 8, which also contitutes part of the frame. The pintle 3 is rotatably received through hinge sections 7—7 fixed to opposite lateral edges of board 1.

Fixed on the base 8 is a pair of parallel horizontal rails 9, each formed with an upwardly and inwardly directed flange 10 supported in spaced relation above its base portion 11. The flanges 10—10 conjointly define a trackway beneath and generally parallel to the board 1, along which a spring support for the board generally designated 13 may be adjustably positioned to vary the resiliency of the board as is necessary in order to best adapt it for use by persons of varying weights and preferences.

As is best shown in Figure 3 of the drawings, the support 13 comprises a carriage or frame of generally U-shaped configuration, including a base or bridge section 14 extending horizontally between and resting on the rail flanges 10—10, with lateral projections 15 extending beneath said flanges, and a pair of opposed vertical standards 16—16 fixedly secured on the base and projecting upwardly on opposite sides of the board 1. In order to fixedly position the carriage 13 in any predetermined position of adjustment along the trackway, there are provided set screws 18—18 which are threaded through the ends of the bridge section 14 for abutting engagement with rail flanges 10.

Helical springs 19 respectively disposed on the standards 16 are under compression between the base or bridge section 14 and the supporting plate 20 of a clamp means which is resiliently supported by springs 19 for vertical movement on the standards or guides 16. Openings (not shown) through opposite ends of plate 20 slidably receive the standards 16.

The aforesaid clamp means includes a U-shaped somewhat resilient metal member 22 having its cross piece 23 secured, as by bolts 21, to the plate 20. The upwardly projecting legs 24—24 of this member 22 terminate in laterally opposed jaws 25—25 for clamping engagement with the opposite side edges of the board 1. Normally these jaws 25—25 are spaced apart a distance greater than the width of the board 1 and are drawn into operative engagement with the edges thereof by means of a tie rod 26 disposed through transversely opposed openings in the legs 24. A nut 27 threaded on one end of rod 26 may be actuated in obvious manner to urge the clamp jaws 25 into operative engagement with the board 1 or to release the board as desired.

In order to provide a support for the board 1, both during its normal use and also during longitudinal adjustment of the carriage or support 13 (at which time the clamp jaws 25 will be released from the board 1) a roller 28 is freely rotatably journaled on tie rod 26. Obviously rotation of the roller 28, while in supporting engagement with the board, will reduce the force required for such longitudinal adjustment.

Roller 28 may be of rubber, or rubber coated, to provide a cushioning surface for cooperation with the board 1 to dampen noises or rattles incident to its use.

A further feature of the invention consists in providing snubber springs 29 on the standards 16 each being under compression between the upper surface of plate 20 of the clamp means and an enlargement 30 on the upper end of standard 16. It will be seen that these springs 29 will oppose the springs 19 whereby the clamp means, through engagement of the springs 19 and 29 with its plate 20, will normally be supported in a position of balance between the opposed springs 19 and 29, and the snubber springs 29 will function to dampen the upward movement or recoil of the board 1, after the diver has left same.

Preferably, each enlargement 30 contitutes a radially extending skirt or flange carried by a nut 31 threaded on the upper end of its associated standard 16. With

such arrangement additional adjustability may be obtained by rotating nut **31** to attain the desired degree of stiffness of the springs. Such adjustment will be simultaneously imposed on both the supporting springs **19** and the snubber springs **29**.

Thus, in operation, it will be seen that where it is desired to adjust the resiliency of the board **1**, the set screws **18** may be backed off from the track flanges **10** to free the carriage **13** for movement along the trackway formed by said flanges. Similarly by backing off the nut **27** on tie rod **26**, the clamp jaws **25** may be released from engagement with the board **1**. At this time the entire carriage **13** may be adjusted manually in either direction along the trackway, to a new position, and the set screws **18** and nut **27** then tightened to secure the carriage in its new position of longitudinal adjustment, both with regard to the trackway **9** and to the board **1**.

Obviously, movement of this carriage **13** toward the hinge or fulcrum point of the board **1** will decrease its stiffness, while movement of the carriage in the opposite direction will increase the stiffness of action of the board. Where it is desired to still further adjust the springiness of the board, this may be accomplished through compressing or releasing the springs **19** and **29** by actuation of their associated compression nuts **31** in the manner above-mentioned. It will be seen that the roller **28** will support the board **1** during longitudinal adjustment of carriage **13**, and at the same time will minimize the frictional resistance to such adjustment.

In this application there is shown and described only the preferred embodiment of the invention, simply by way of illustrating the best mode contemplated by me of carrying out the invention. However, it is recognized that the illustrated embodiment and its several details may be altered in various ways without departing from the invention. Accordingly, the drawings and description herein are to be construed as illustrative and not as exclusive.

Having thus described the invention, what is desired to be secured by Letters Patent is:

1. A springboard structure comprising a frame, a rectilinear board hinged at one end to said frame for vertical swinging movement, a trackway on said frame beneath and longitudinally of said board, a carriage adjustable along said trackway to varying positions lengthwise of the board, means on said carriage for securing it in any of said positions, a clamp carried by said carriage for vertical movement, said clamp having laterally opposed jaws for operative engagement with the opposed lateral edges of the board at varying positions lengthwise of the board, and opposing spring means co-acting between said carriage and the clamp for urging said clamp to a predetermined vertical position on the carriage.

2. The combination of claim 1 wherein said spring means includes supporting springs and snubber springs acting in opposite vertical directions and jointly urging said clamp to a predetermined vertical position of balance between said spring means.

3. The combination of claim 2 wherein said spring means comprise compression-type coil springs disposed on a common standard, said clamp being guided vertically on said standard between said springs and means for adjusting the compressive force on said springs.

4. In a springboard structure a carriage, said carriage comprising relatively spaced vertical standards, clamp means guided for vertical adjustment on said standards, said clamp means including a horizontal section and substantially vertical opposed legs terminating at their upper ends in clamp jaws, in combination with an adjusting bolt passed through said legs adjacent their upper ends for drawing said jaws together, and a roller rotatably supported on said bolt for supporting a springboard between said jaws.

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