

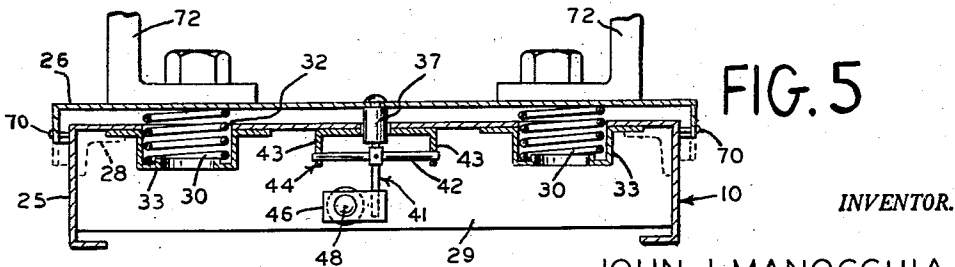
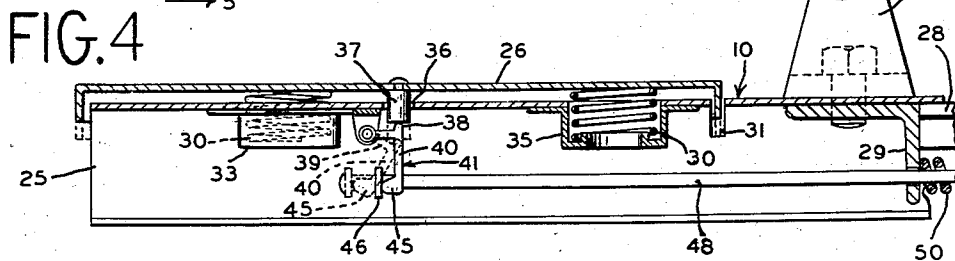
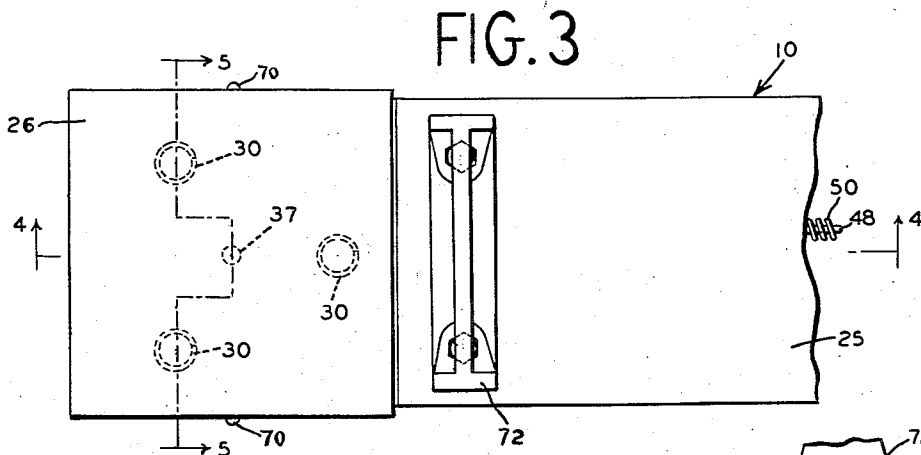
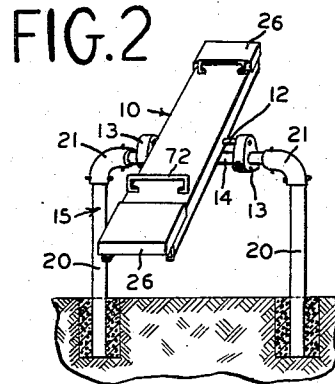
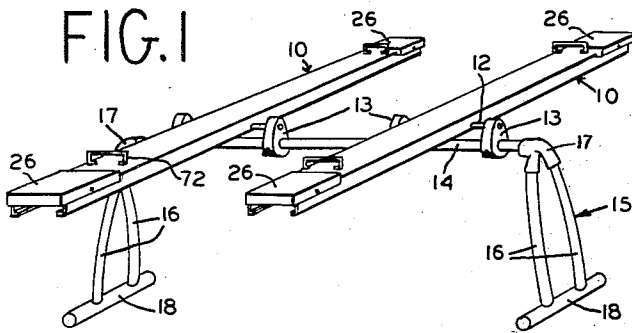
June 17, 1958

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SEESAW OR TEETER BOARD

2,839,298

Filed Aug. 24, 1956

2 Sheets-Sheet 1



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FIG. 6

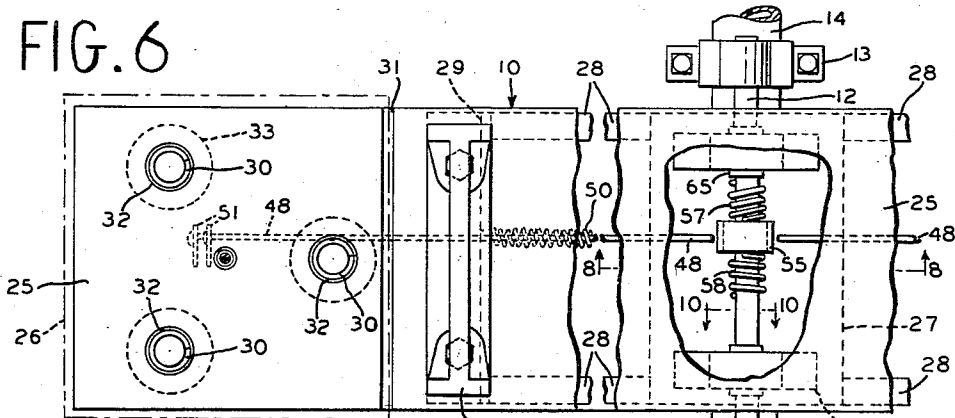


FIG. 7

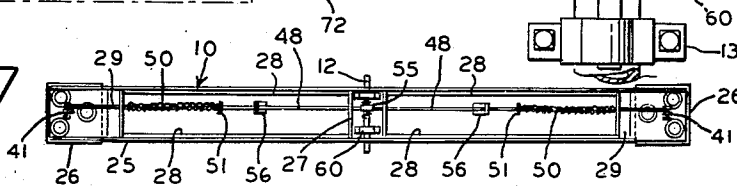


FIG. 8

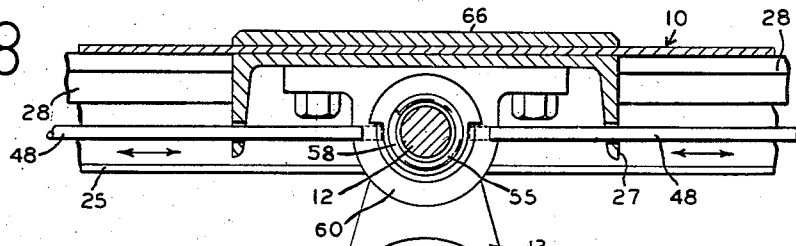


FIG. 9

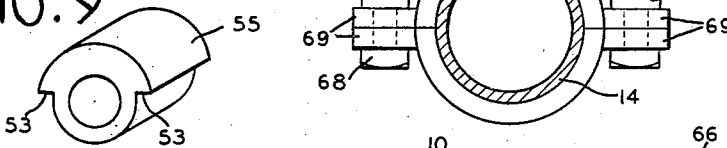


FIG. 10

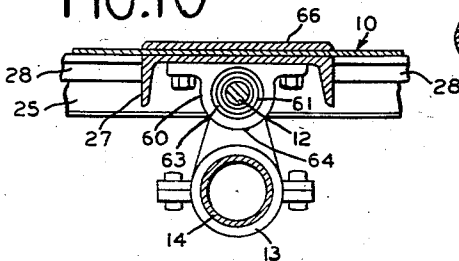
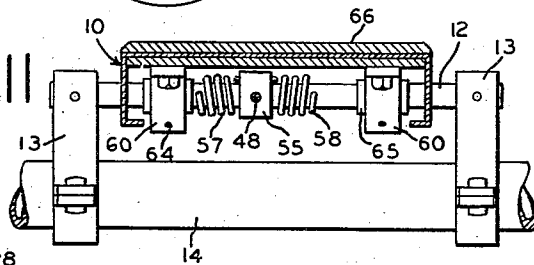


FIG. 11



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## SEESAW OR TEETER BOARD

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5 Claims. (Cl. 272—54)

This invention relates to improvements in seesaws or teeter boards for use in playgrounds, schools, home play yards and all places where such devices are provided for children's entertainment and amusement.

It is the primary object of the present invention to provide an improved seesaw plank structure incorporating simple and efficient means for arresting the deadfall descent of the elevated and occupied seat portion of the seesaw plank member whenever one of the riders jumps off or vacates the seat on the descending plank end portion.

Another object of the present invention is the provision of mechanical means which will be actuated automatically the instant one of the players jumps off the seesaw plank so as to bring into effect a compensating spring resistance sufficient to prevent sudden dropping of the remaining player seated on the other end of the plank whereby a more or less smooth teetering movement of the plank member can be continued even when there is only one player seated thereon.

A further object of the invention is to provide a safety device of the foregoing character which will be ready to perform at all times and will require no manual setting and which will be of a strong durable construction that will not easily get out of order.

A still further object of the invention is to provide an improved safety seesaw plank structure as above-described which may be easily applied to the plank supporting pipe frames of existing seesaws, and without requiring major alterations of the pipe frames in making such conversion.

Further objects, features and advantages of this invention will become apparent from the following description when read in connection with the accompanying drawings, and the novel features will be particularly pointed out in the appended claims.

In the drawings:

Fig. 1 is a perspective view of a portable two-board seesaw unit in which each board member embodies the safety mechanism according to the present invention;

Fig. 2 is a perspective view showing a one-board seesaw unit of a type which is permanently set in concrete and embodies the safety mechanism according to the present invention;

Fig. 3 is a fragmentary top plan view of one end portion of a seesaw board member of the type employed in either the Fig. 1 or Fig. 2 arrangements and showing features of the movable seat member with which such end portion is equipped;

Fig. 4 is a central longitudinal sectional view, on enlarged scale, taken substantially on the line 4—4 of Fig. 3 looking in the direction of the arrows;

Fig. 5 is a transverse sectional view, on enlarged scale, taken substantially on the line 5—5 of Fig. 3, looking in the direction of the arrows;

Fig. 6 is a fragmentary top plan view of the end portion of the seesaw board member as shown in Fig. 3,

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but with the associated seat member removed and indicated in broken outline, and showing essential features of the safety mechanism;

Fig. 7 is a bottom plan view of an entire board member of the type employed in either the Fig. 1 or Fig. 2 seesaw units showing the safety mechanism of the present invention applied thereto, and including features of the pivotal mounting at the fulcrum;

Fig. 8 is a fragmentary longitudinal sectional view, on enlarged scale, taken substantially on the line 8—8 of Fig. 6 looking in the direction of the arrows, showing the region of the board member at its fulcrum, with parts in side elevation, and including details of the pivotal mounting arrangement of the board as well as features of the safety mechanism proximate thereto;

Fig. 9 is a pictorial view of the latch block member;

Fig. 10 is a fragmentary longitudinal sectional view taken substantially on the line 10—10 of Fig. 6 looking in the direction of the arrows, showing one of the anti-friction bearing pillow blocks by which the pivot shaft of the board is mounted; and

Fig. 11 is a transverse sectional view taken substantially on the line 11—11 of Fig. 6 looking in the direction of the arrows, showing details of the torsion spring couple by means of which deadfall of the board ends of the seesaw is prevented, and also showing the manner of mounting the board on a conventional pipe frame support.

Referring to the drawings, and in particular to Figs. 1 and 2 thereof, I have there shown a seesaw board or plank member 10 which is of the usual length and pivotally fulcrumed midway thereof upon a stationary shaft 12 fixedly secured at its ends by suitable upright hangers 13 which are clampingly held to the usual crossbar 14 of a pipe frame 15. This pipe frame may be of either a portable structural unit such as illustrated in Fig. 1 in which it comprises pairs of upright supports 16 connected together at their upper ends by suitable fittings 17 to the crossbar 14 and having the lower ends of the supports 16 affixed to horizontal bars 18 where the device is to rest on the ground; or it may comprise a pair of upright pipe members 20, the upper ends of which are connected by fittings 21 to the crossbar 14 and having the lower ends permanently set in concrete to a depth that will provide a solid rigid frame structure as indicated in the form shown in Fig. 2.

As illustrated in Figs. 3 to 7 inclusive, the seesaw board or plank 10 consists of an inverted channel-like member 25 formed of heavy gauge sheet metal which is bent into generally U-shape and is open for its entire length along its underside (see Fig. 7). At the opposite end extremities of the board or plank 10 movable seat members 26 are provided of inverted box-like formation and also of sheet metal construction. Supplemental stiffening means may be provided within the interior of the channel member 25 such as, for example, a transverse inverted steel channel piece 27 over the fulcrum (see Fig. 8) and connected by side angle bars 28 to transverse angle bars 29 (see Figs. 4, 6 and 7) proximate to the seat members 26, these metal stiffeners all being suitably welded to each other and to the underside of the sheet metal channel member 25.

Each of the seat members 26 is supported upon a plurality of coil springs 30 (see Figs. 3, 4, 5 and 6) which are arranged to define a tripod for resiliently supporting the associated seat member whereby the latter may be depressed by a rider upon being seated thereon so as to move downward toward the underlying portion of the board 10.

As shown in Figs. 4 and 6, transverse slots 31 are provided through the top wall portion of the channeled

board 10 and these extend also partly down into the adjoining portions of the opposite side walls thereof to a depth sufficient to permit limited downward movement of the particular seat members such as, for example, of the order of approximately one-quarter of an inch, under the weight of the player seated thereon whereby the coil springs 30 will be held depressed when both children are occupying seats on the teeter board. The coil springs 30 not only resiliently support the respective seats 26 for up and down movement, but they also provide the motive force to restore the seat members to their highest positions when unoccupied. The seat members 26 are independent of each other and each includes the following arrangement of parts which are actuated automatically thereby to arrest the deadfall of its end portion of the board so that the description of one will suffice for the other.

As illustrated in Figs. 4 and 5, each coil spring 30 has its upper end projecting through a hole 32 in the top wall of the channel 25 and bearing against the underface of the seat member 26 with the major part of its body confined within an inverted cup 33 having a flanged upper rim 34 suitably attached to the underface of the overlying top wall of the channel 25, as by being welded thereto. The lower ends of these springs bear upon and are supported by the inside face of an annular flange 35 forming the bottom wall of the cup 33.

Projecting downwardly through a hole 36 in the top wall of the channel 25 and centrally from the underside of the seat members 26 and integrally attached at one end thereto is an actuator pin 37 (see Figs. 4 and 5) the free end of which bears upon a rounded knob 38 upstanding at the juncture of two integral right-angular arms 39 and 40 of a pivoted lever 41 of inverted generally L-shaped formation. As illustrated in Fig. 4, the arm 39 of the lever 41 is the pivot arm thereof and has its free end pivotally mounted on a crossrod 42 which is fixedly supported at its ends in arms 43 of a bracket 44 suitably affixed to the underface of the top wall of the board channel 25. The arm 40 extends downwardly and there is provided at its free end a curved cam-like enlargement 45 which has sliding engagement with the confronting face of a plate member 46 which is fast on the outer end of a spring-loaded rod 48 as indicated by the spring 50. The spring 50 is a compression spring which encircles the rod 48 and acts between an abutment 51 fast on an intermediate portion of the rod 48 and the depending leg of the angle bar 29 and normally tends to urge the rod 48 in a direction toward the board fulcrum and to maintain the plate member 46 at all times against the curved end of the cam-like enlargement 45. The seat springs 30, however, have a combined force to supplement that of the spring 50 to lift the seat to its highest point and at the same time propel the associated rod 48 in a direction toward the fulcrum of the board 10 whereby the end of the rod 48 proximate thereto will engage and latch beneath a flanged shoulder 53 adjacent thereto of a block member 55.

Suitable brackets 56 affixed to the underside of the top portion of the board channel 25 in conjunction with the depending legs of the angle bars 29 loosely mount and support the rods 48 for partaking of the bolt action just described.

As illustrated in Fig. 9, the block 55 is provided on its opposite sides with two flanged shoulders 53, one for each rod 48, and this block is loosely mounted upon the stationary pivot shaft 12.

In order to effect the compensating spring resistance contemplated by the present invention for arresting any deadfall of the descending board end whenever either or both seats are suddenly vacated, I employ, for this purpose, a torsional spring couple which consists of two coil springs 57 and 58 which encircle the pivot shaft 12 and are arranged thereon at opposite sides of the block

55, each spring having one end bent in an axial direction and inserted into this block and the other end bent radially inwardly and connected to the pivot shaft 12 by insertion into a suitable side hole therein. The springs 57 and 58 are oppositely coiled, i. e., the lead of their respective convolutions are right and left hand respectively whereby they both will twist together in the same direction whenever the block 55 oscillates on the shaft 12 after being latched by either or both of the rods 48 when their seat members 26 "pop" up due to being vacated by one of the players.

Consequently, the teeter board 10 swings on the pivot shaft 12 relative to the block 55 when the inner ends of both spring-loaded rods 48 are held in retracted positions by the seat-depressed lever 41 by reasons of both players being seated thereon and riding such ends of the plank or board 10. However, the instant one of the children jumps off either of the seats 26, this seat member will "pop" up instantly accompanied by an upswinging movement of the lever 41 from its position depicted in broken outline in Fig. 4 to its full line position there shown together with spring-propelled bolt action movement of the associated rod 48 to project it into latching engagement with the block 55 to effect oscillation thereof on the shaft 12 and to twist both springs 57 and 58 in a direction to oppose the descent of the unoccupied board end.

It will be understood, of course, that the device will operate as above-described only when the occupant who jumps off does so when his end of the teeter board 10 is horizontal or below the substantially horizontal plane which extends from the flanged shoulders 53 of the block 55 (Figs. 8 and 9). Whenever the end which has an occupant is above the plane of a shoulder 53 the latching mechanism will be prevented from engaging because of the previous relative rotation of the teeter board 10 with respect to the block 55 in such manner as to prevent locking by the rod 48 of the latching mechanism.

In other words, when only one rider is seated on the board 10, the swinging motion of the board will be transmitted through the block 55 to twist the coil springs 57 and 58 in the same direction so as to use their torsional action to counteract and arrest the downward movement of the occupied end of the teeter board. However, when two players are seated on the board ends, the latch block 55 does not oscillate with the board 10 as the latter swings on the non-rotatable shaft or axle 12 but instead remains stationary in the position shown in Fig. 8 with the helical coils of the springs 57 and 58 relaxed or untwisted around the axes of such springs and also with the abutments or flanged shoulders 53 of the block properly positioned for latching engagement by the respective ends of the rods 48 whenever they are projected from their retracted positions.

To facilitate smooth easy swinging movements of the seesaw board or plank 10 at the fulcrum, I preferably employ an antifriction form of mounting arrangement therefor. To this end, I have mounted the board 10 on the shaft 12 by use of two well known and conventional ball bearing adapter type pillow blocks 60 in each of which there is housed a lubricant sealed type of ball bearing unit 61 whose outer race member 63 (see Fig. 10) is non-rotatably secured in the pillow block by suitable set screw as indicated at 64 in Figs. 10 and 11, while the inner race member (not shown) is made fast to an adapter sleeve 65 which is suitably secured onto the shaft 12. The pillow blocks 60 are bolted to the bottom inner face of the inverted channel piece 27 (see Fig. 8), and also may be further secured by such bolts to a top plate 66 suitably affixed to the upper face of the board channel 25 above its fulcrum to impart additional stiffening to the board member in the region of the channeled crosspiece 27.

The upright hangers 13 are of a split bearing construction for mounting around the cross pipe 14 and to

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which it is clamped by means of through bolts 68 which pass through suitable side flanges 69 integral with the hangers, as shown in Fig. 8. The hangers 13 and also the end fittings 17 and 21 preferably are made of a high strength malleable iron while the pipe frame 15 is constructed of structural steel piping.

Means also are provided to retain the seat members 26 in place on the ends of the channeled board member 25 without interfering with their vertical movements, such as for example, pins 70 suitably affixed to the upper portion of the sides of the board channel 25 and projecting outwardly through suitable slots (not shown) disposed vertically in opposite side flanges of the seat members (see Figs. 3 and 5) and of a depth equal to that of the slot 31.

The board or plank 10 also may be equipped with suitable handles 72 proximate to the seat members and bolted to the top of the channel member 25, as shown in Figs. 1, 2 and 3.

Among the many advantages of this safety fall preventing mechanism for seesaws are that the deadfall protective or arresting action is instantly and automatically applied to the board or plank when a seat is vacated by one or both of the players; there is no manual resetting of the mechanism required at any time to render it operative; there are no levers or parts of the mechanism projecting exteriorly of the board to injure the players; and lastly, the arrangement enables one player alone to use and operate the board without experiencing too rough teetering movements and with complete assurance of protection against falls.

From the foregoing description, it is thought that the construction and operation of the invention will be fully understood without requiring further explanation.

What is claimed is:

1. A seesaw including a support, a board member pivotally mounted thereon, seats mounted for vertical movement on the outer ends of said board member, and a safety fall preventing mechanism which will function at the time and under the particular conditions hereinafter recited to arrest the deadfall descent of the end portion of said board member occupied by a player whenever a second player vacates the seat on the opposite end portion of said board member during the course of its teetering movements, said safety mechanism comprising abutment means pivotally mounted on said support, a torsion spring couple operatively connected with said support and said abutment means to restrain pivotal movement of the latter, retractable rod members mounted on said board member in opposing relationship at opposite sides of said abutment means and extending therefrom in opposite directions lengthwise of the board member to terminate beneath said seat members, and means operatively arranged to be moved by said seats and in unison with the vertical movements thereof to push said rod members to and from positions of engagement and disengagement with said abutment means simultaneously upon appropriate vertical movements of either one or both of said seats whenever such seats become unoccupied and the board member is horizontal or when either end portion thereof occupies a position below a substantially horizontal plane which extends through and contains the abutment part of said abutment means.

2. A seesaw including a support, a channel-like board member of inverted generally U-shaped cross-section pivotally mounted on said support, vertically movable sheet metal seat members resiliently mounted on the outer ends of said board member and arranged to be depressed when a rider is seated thereon, the top wall of said channel underlying a part of said seat members being slotted transversely thereof and to a depth to receive such part of said seat members and limit to a predetermined extent the downward movement of the seat members, and a safety fall preventing mechanism which will function at the time and under the particular conditions hereinafter

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recited to arrest the deadfall descent of the end portion of said board member occupied by a player whenever a second player vacates the seat on the opposite end portion of said board member during the course of its teetering movements on said support, said safety mechanism comprising abutment means pivotally mounted on said support, a torsion spring couple operatively connected with said support and said abutment means to restrain pivotal movement of the latter, retractable rod members mounted on said board member at opposite sides of said abutment means and extending therefrom in opposite directions lengthwise of the board member to terminate beneath said seat members, and means operatively arranged to be actuated by and moved by said seat members in unison with the vertical movements thereof to push said rod members to and from positions of engagement and disengagement with said abutment means simultaneously upon appropriate vertical movements of either one or both of said seat members whenever such seats become unoccupied and the board member is horizontal or when either end portion thereof occupies a position below a substantially horizontal plane which passes through and contains the abutment part of said abutment means.

3. A seesaw according to claim 2 in which the abutment means consists of a latch block having flanged shoulders at opposite sides thereof and in which said torsion spring couple is mounted on said support and consists of two helical springs one at each side of said latch block with the ends adjacent thereto of both springs being connected to said block and their distal ends connected to said support whereby whenever either or both shoulders of said block become engaged by said rod members said spring couple will be twisted in a direction to apply a torsional force sufficient to arrest the deadfall descent of the elevated and occupied board end on which a rider is seated should the rider on the opposite and descending board end vacate the seat thereof.

4. A seesaw according to claim 2 in which coiled spring means support and resiliently mount the seat members on the ends of the board member for vertical movement thereto and there are provided other coiled springs individual to each of said retractable rod members and arranged to maintain at all times operative motion-responsive connection of the actuator means with the seat members and the terminal ends of said rod members thereunder.

5. The combination with a seesaw board member of inverted channel-like construction open longitudinally on its underside and constructed of sheet metal, and a pipe frame support therefor, of an axle non-rotatably secured above and fixed to said pipe frame support, spaced anti-friction bearing means mounted within and suspended from the board member and pivotally mounting the latter on said axle, seats mounted for vertical movement on the outer ends of said board member and arranged to be depressed when a rider is seated thereon, and safety fall preventing mechanism which will function at the time and under the particular conditions hereinafter recited to arrest the deadfall descent of the end portion of said board member occupied by a player whenever a second player vacates the seat on the opposite end portion of said board member during the course of its teetering movements, said safety mechanism comprising a latch block having flanged shoulders at opposite sides thereof and loosely mounted for free pivotal movement on said axle, a torsion spring couple mounted on said axle one at each side of said latch block and both springs being connected thereto and to said axle, spring-loaded retractable rod members suspended from the board member at opposite sides of said latch block and extending therefrom in opposite directions lengthwise of the board member to terminate at their outwardly directed ends beneath said seat members, plate means on said rod ends, actuator pins fixed to said seat members and projecting down-

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wardly from the center thereof, and pivoted levers suspended from the board member beneath said seat members and having a portion bearing against the bottom ends of said actuator pins, said levers each having a lower cam portion for engaging said plate means of the rod members, the spring loading of said rod members operatively maintaining said levers engaged with said actuator seat pins and the plate means on the rod members, said seat supporting springs acting in consort with the spring loading of said rod members to lift the particular seat from its depressed position when vacated by a rider and simultaneously push the associated rod member from a retracted position toward the axle to engage and latch beneath a flanged shoulder adjacent thereto of the latch

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block to produce appropriate twisting of said spring couple whereby its torsional action will apply sufficient force to counteract and arrest the downward movement of the occupied end of the board member, said mechanism being capable of functioning at any time that the board member is horizontal or when either end portion thereof occupies a position below a substantially horizontal plane which extends through and contains the shoulders of said latch block.

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