Jan. 15, 1929. 1,698,751

T. C. DOBBINS

SPRING BOARD

Filed Sept. 12, 1927

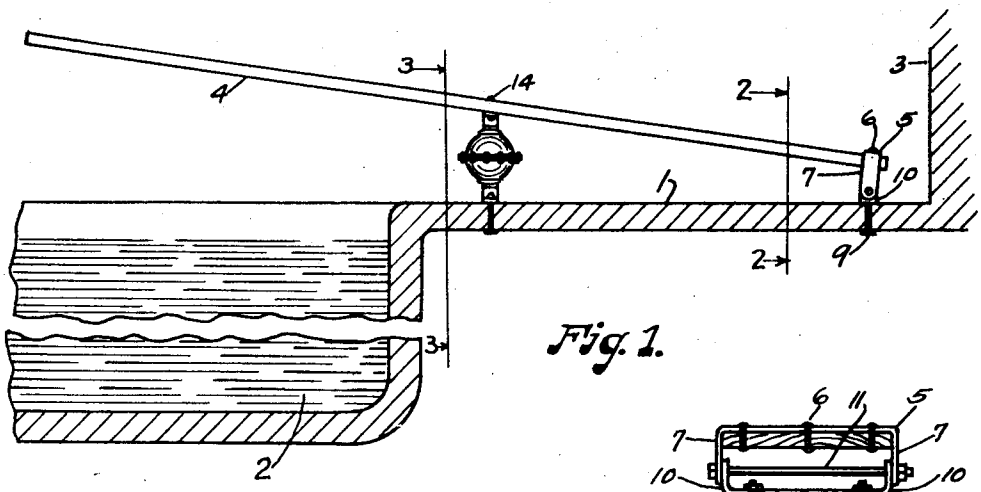


Fig. 1.

Fig. 2.

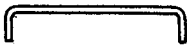


Fig. 4.

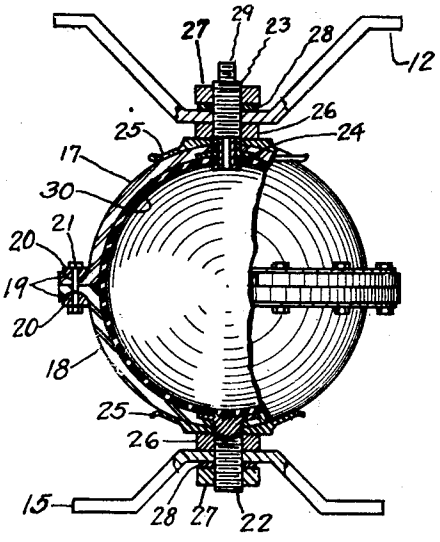


Fig. 5.

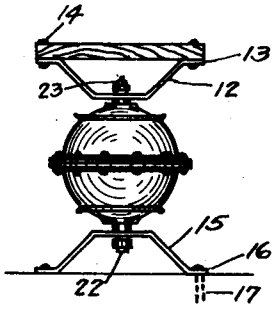


Fig. 3.

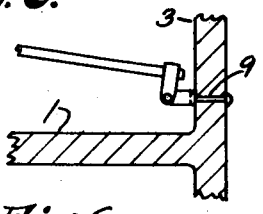


Fig. 6.

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SPRINGBOARD.

Application filed September 12, 1927. Serial No. 219,020.

It is the object of the invention to produce an improved spring-board of the type employed in connection with swimming pools for the purpose of assisting the bathers in diving.

Spring boards of the type referred to are now as a rule formed from hickory planks that have one end firmly anchored to the ground or floor; the other end projecting over the water and which are supported intermediate their ends on a solid fulcrum.

It is the object of this invention to produce a spring board construction in which the board shall be supported on a flexible spherical ball which is made of air tight material and which contains air under pressure and which is therefore highly resilient. By means of my construction the plank which in the ordinary construction must be resilient, can be made of a rigid steel member such as a steel plate bent into the shape of a channel as the plank is no longer depended on to produce the spring effect, this being produced by the elastic ball whose effect can be adjusted by means of the air pressure.

It is a further object of this invention to produce a device of this type that shall be practically noiseless and which shall be so constructed that the upward throw of the board or plank will be limited by the action of the resilient ball or support.

The above and other objects that may become apparent as the description proceeds are attained by means of a construction and an arrangement of parts that will hereinafter be described in detail and reference for this purpose will now be had to the accompanying drawing in which the preferred embodiment of my invention has been illustrated and in which;

Fig. 1 is a side view of my improved springboard showing the same in place.

Fig. 2 is a section taken on line 2—2 Fig. 1 and shows the means employed for anchoring one end of the board to the floor.

Fig. 3 is a section taken on line 3—3, Fig. 1 and shows the pneumatic spring device in place.

Fig. 4 is a fragmentary side elevation of the anchored end of the board showing the same secured to the wall instead of to the floor.

Fig. 5 is a vertical diametrical section through the pneumatic ball, showing its construction and the means by which it is secured to the floor and to the board and,

Fig. 6 is a section showing a channel shaped board formed from a steel plate.

In the drawing numeral 1 designates the surface of the floor adjacent a pool 2. The wall of the room in which the pool is located has been designated by numeral 3, while the "spring board" has been indicated by numeral 4. One end of the board 4 has secured to it a hinge member 5 which has a central straight section that is secured to the end of the board by means of bolts or screws 6. This hinge member has its ends 7 bent at right angles in the manner shown in Fig. 2. A similar hinge member has its straight portion 8 secured to the floor by means of bolts 9 or this member may be secured to the wall 3 in the manner shown in Fig. 6. The ends 10 are bent at right angles to the central part 8 and these are so spaced that they will fit between the ends 7. A bolt 11 passes through holes in ends 7 and 10 and serves as a hinge pin. Secured to the underside of the board 4 is an attaching member or chair 12 whose ends 13 are perforated for the reception of bolts 14 by means of which it is fastened. A similar attaching member 15 has its ends 16 attached to the floor by means of bolts 17. Members 12 and 15 have their central portions spaced from their respective supporting surfaces and provided with openings for the reception of means for attaching the pneumatic spring that will now be described.

The spring or ball is constructed in the manner shown in Fig. 5 in which numeral 18 represents a cord or fabric casing made of two semi-spherical parts, each of which has a flange 19 which projects outwardly. These flanges are clamped together by means of rings 20 and bolts 21. The casing is constructed from cord fabric in a manner similar to that in which ordinary automobile tires are made. The ball is provided with securing bolts 22 and 23 which have large flat heads 24 that engage the inner surface of the casings. Saucer shaped disks 25 engage the outer surface of the casings. Nuts 26 space the disks 25 from the supports 12 and 15 and nuts 27, which are spaced from the supports by spring washers 28, serve to firmly connect the ball to the supports, all as shown in Fig. 5. The bolt 27 is tubular and has an axial opening of sufficient size to receive the valve

stem 29 that communicates with the interior of the rubber bladder 30, which corresponds to the inner tube of a tire. The ball may be inflated to any desired pressure by applying an air pump to the valve stem. By varying the pressure in the ball its resiliency can be adjusted to suit any requirement.

Let us now assume that the board is put into place in the manner shown and described, and that a bather is standing on the end over the water; the weight of the bather will compress the ball to some extent and when he jumps the spring action of the penumatic ball will throw the end of the board upwardly. The ball also acts as a snubber and serves to stop the upward movement of the board; this snubbing action is due to the fact that any attempt to elongate the ball will be resisted, first of all by the material which tends to retain its spherical form and secondly by the air contained within the ball which will become compressed whenever the shape of the ball is altered as it is well known that for a given surface area a sphere has the greatest volume. Since the board has one end hinged and rests on the elastic ball its spring action is not due to the resiliency of the board but to the resiliency of the ball. It is therefore possible to make the board 4 of a steel channel such as that shown in Fig. 6. Since the board is attached to the upper side of the ball and the lower side of the ball is attached to the floor the action of the board will be noiseless. By altering the air pressure in the ball the range of movement can be varied so as to obtain the best results.

From the above it will be apparent that I have produced a new spring board construction that employs a pneumatic spring element and which is noiseless in its operation and which can be readily adjusted. In the description the terms "board" and "springboard" have been used to designate the elongated supporting member 4, I want it understood however, that this member may be made of wood or of metal and may be perfectly rigid or it may be yielding.

Having described my invention what I claim as new is:—

1. A device of the class described, comprising in combination a stationary member, an elongated supporting member, means for pivotally connecting one end of said elongated member with the stationary member, and resilient means for supporting the elongated member from the stationary member, said last named means comprising a hollow air tight ball of flexible material.

2. A diving apparatus comprising an elongated supporting member having one end hingedly connected with a stationary member and a hollow air tight ball of flexible material located between the upper surface of the stationary member and the under surface of the elongated member and serving as a support for the latter.

3. A device of the class described, comprising in combination, a stationary member having a substantially horizontal supporting surface, an elongated member having one end attached to the stationary member by means which permits it to pivot about a horizontal axis, and resilient means between the upper surface of the stationary member and the lower surface of the elongated member, said resilient means comprising a hollow flexible ball and means for connecting the upper and the lower sides of the ball respectively with the under side of the elongated supporting member and the floor.

4. In a device of the class described wherever there is a stationary supporting member and an elongated supporting member pivotally attached at one end to the stationary supporting member, the combination with said members of a resilient pneumatic element comprising a hollow air tight ball containing air under pressure and which is located between said members and which is compressed when the elongated member is subjected to a force that tends to move it towards the stationary member.

5. A device in accordance with claim 4 in which the resilient pneumatic element comprises in combination a pair of opposed semi-spherical casings, means for securing the casings to each other so as to form a hollow member of substantially spherical form and means secured to each of said casings for anchoring it to one of the relatively movable members.

6. A pneumatic spring element comprising, in combination, two relatively movable members, a pair of semi-spherical casing members having outwardly extending flanges, means comprising two rings and a number of bolts for clamping the flanges together and separate diametrically opposed anchoring elements secured to the casings for attaching them to the relatively movable members.

In testimony whereof I affix my signature.

TIMOTHY C. DOBBINS.