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RESILIENT FLOOR CONSTRUCTION

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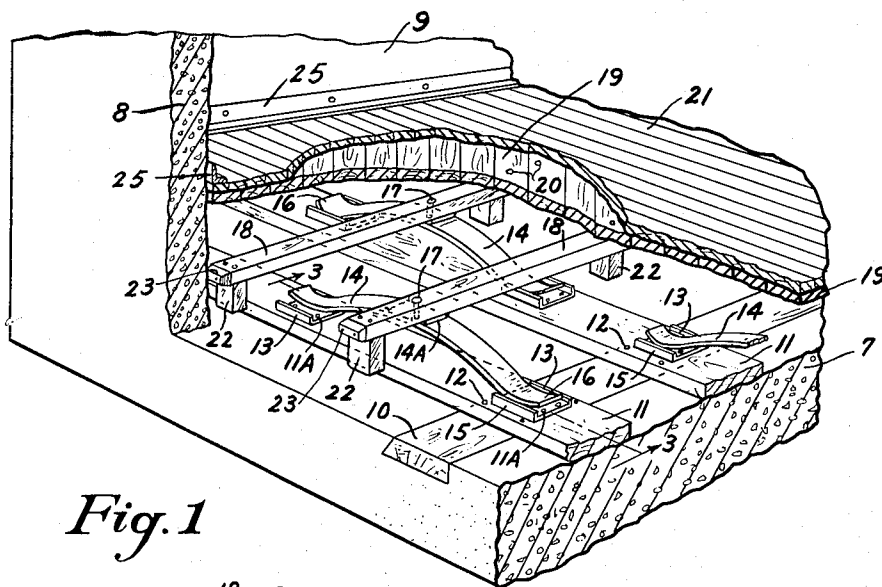


Fig. 1

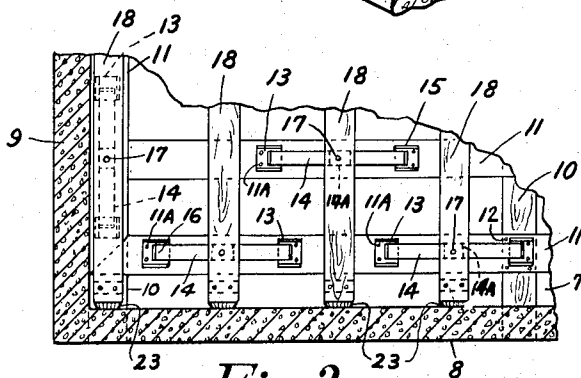


Fig. 2

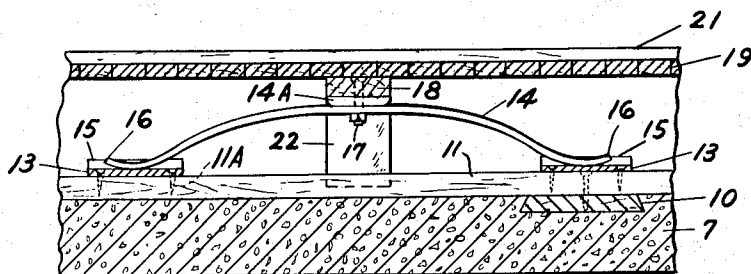


Fig. 3

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1

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RESILIENT FLOOR CONSTRUCTION

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1 Claim. (Cl. 20—6)

This invention relates to building construction and has particular reference to a resilient floor for use in gymnasiums, basket ball courts, roller rinks, and other places where athletic events take place.

It is now almost universally the practice to build gymnasiums on the ground floor of a building, using concrete as the sub-floor. This type of construction results in a very rigid floor which is highly damaging to the muscles of athletes who must use such a floor.

It is, therefore, an object of this invention to provide a building structure having a floor which is resilient to a sufficient degree so that it is acceptable for use where athletic events are to take place.

Another object of the invention is to provide a resilient floor of the character indicated, which floor is so constructed and arranged so that the resiliency may be controlled to insure a proper safety factor.

Another object of the invention is to provide a floor of the character indicated in which the dead weight in any specific arrangement of the floor is distributed over a substantially large area.

Another object of the invention is to provide a resilient floor of the character indicated, which is simple in construction, economical to assemble, and one which is easy to make level during the installation thereof.

Another object of the invention is to provide a floor which has a predetermined amount of resiliency but which is substantially soundproof.

Another object of the invention is to provide a floor of the character indicated which is constructed and arranged to allow ventilation between the wooden sub-floor and concrete sub-floor, with the end result that any tendency of the floor to rot or deteriorate, because of the existence of moisture, is obviated.

Another object of the invention is to provide a floor in which the sectioned portion thereof is spaced from the sub-floor by means of the plurality of leaf springs, each of which is provided with slidable bearings with supporting means for the bearings which maintain the springs in alignment and prevent the springs from shifting laterally and shall permit the springs to compensate for any expansion which might take place in the structural members to which the springs are attached.

The foregoing and other objects and advantages of the invention will become more apparent as the description proceeds, reference being made from time to time to the accompanying drawings forming part of the within disclosures in which drawings:

Fig. 1 is a fragmentary perspective view of a floor embodying the invention.

Fig. 2 is a fragmentary plan view of the structures shown in Fig. 1 with the finished floor and wooden sub-floor removed.

Fig. 3 is an enlarged fragmentary detail in section taken substantially on the line 3—3 of Fig. 1.

Referring now more particularly to the drawings, it will be understood that in the embodiment herein disclosed, the reference character 7 indicates a concrete sub-floor and the reference characters 8 and 9 indicate the side walls of a building. Embedded in the upper surface of the concrete sub-floor 7 is a plurality of wooden sleepers 10, which are positioned parallel and in space relation with their upper surfaces flush with the upper surface of the concrete 7. Cross members 11 are laid in the opposite direction on top of the sleepers 10 and in paral-

2

lel, spaced relation. The cross members 11 are secured to the sleepers 10 by nails 12 or other suitable means. Positioned on the cross members 11 and secured thereto as at 11A is a plurality of channel-like members 13 which serve as bearing plates for the ends of the arcuate leaf springs 14. The side walls 15 of the channel members 13 maintain the springs 14 in alignment and prevent the ends thereof from moving laterally but permit them to move longitudinally. The springs 14 are preferably made from heavy spring steel and have their ends up-turned as at 16 to provide curved bearing surfaces on the undersides. The bearing members 13 are preferably made of bronze to minimize the wear and eliminate any tendency of the springs 14 to make a noise as they work on the bearing members 13. The springs 14 are secured at their centers by means of bolts 17 to the underside of 2 x 4's 18, which 2 x 4's extend in an opposite direction to the cross members 11 and are spaced, as is the practice, with conventional floor joists. The wooden sub-floor 19 is diagonally positioned across the 2 x 4's 18 and secured thereto at 20 as in conventional practice. The finish flooring 21 is then positioned on the wooden sub-floor 19 and is secured thereto as in conventional practice. In order to control and limit the downward flexing of the springs 14, I provide a plurality of stops 22 which are secured in spaced relation to the underside of the 2 x 4's 18. The stops 22 are of such length as to permit the springs 14 to flex approximately 3/8 of an inch. This provides the floor with sufficient resiliency yet injects a safety factor to give the floor a solid foundation beyond the flexibility of the springs.

At the ends of the 2 x 4's 18, I prefer to provide rubber bumpers 23 for the purpose of minimizing any shock which may arise by reason of the contacting of the resiliently-mounted floor with the side walls of the building.

The side walls 8 and 9 are preferably provided with angle members 25 which are secured to the walls above the floor 21 and serve to keep dust and dirt from entering the space between the floor and the walls.

Having described my invention, what I claim and desire to secure by Letters Patent is:

A floor construction for a building having fixed side walls, comprising a concrete sub-floor, sleepers embedded in said sub-floor, with their upper surfaces flush with the upper surface of said sub-floor, perpendicular, cross-members secured to said sleepers in parallel, spaced relation, and resting on said concrete sub-floor, a plurality of small, substantially square bearing plates, each having upstanding side walls, secured in spaced relation to said cross-members, a finished floor, spaced floor joists for supporting said finished floor, said joists being arranged perpendicularly to said cross-members and parallel to said sleepers, a plurality of arcuate springs secured at their centers, to said joists, each spring having its respective ends slidable on one of said bearing plates, and spaced, depending stop members, having direct load-carrying capacity, carried by and positioned beneath said joists and offset laterally from said springs and spaced from said bearing plates, whereby the flexing of said springs is limited and the vertical load on said finished floor and joists, is evenly distributed to the sub-floor, when said finished floor is moved a predetermined distance downwardly by an imposed load.

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