

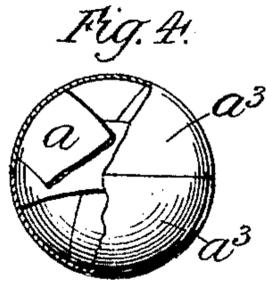
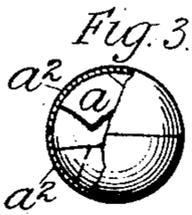
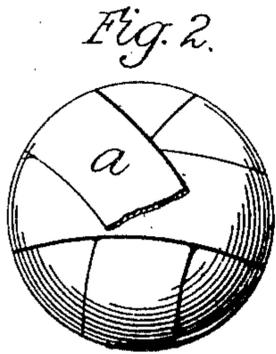
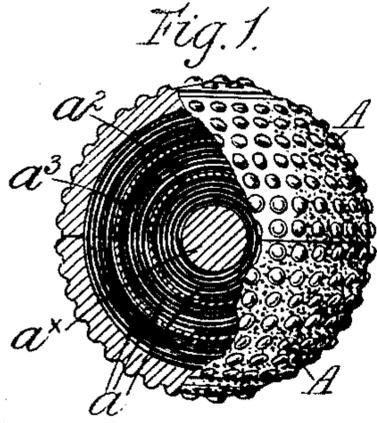
No. 714,918.

Patented Dec. 2, 1902.

E. KEMPSHALL.  
PLAYING BALL.

(Application filed Aug. 19, 1902.)

(No Model.)



Witnesses  
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Inventor:  
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By his Attorney  
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# UNITED STATES PATENT OFFICE.

ELEAZER KEMPSHALL, OF BOSTON, MASSACHUSETTS.

## PLAYING-BALL.

SPECIFICATION forming part of Letters Patent No. 714,918, dated December 2, 1902.

Application filed August 19, 1902. Serial No. 120,194. (No model.)

*To all whom it may concern:*

Be it known that I, ELEAZER KEMPSHALL, manufacturer, a citizen of the United States, residing at No. 41 High street, in the city of Boston, county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in Playing-Balls, of which the following is a specification.

My invention relates to improvements in playing-balls, and has for its object to provide a ball which shall have its weight accurately centered, thereby rendering said ball truer in its flight than playing-balls as heretofore constructed.

According to my present invention I construct a playing-ball by winding or coiling some highly-elastic substance, preferably in the form of tape, ribbon, strips, or threads, under very high tension around a core or center piece composed, preferably, of celluloid or gutta-percha. The winding or coiling of the said elastic substance proceeds until it reaches the required diameter of the inner part or filling of the ball. Between the various coils or windings I interpose a resilient substance, such as celluloid or gutta-percha, preferably in the form of cups or hemispheres. I may employ a series of such cups of different diameters and inclose the respective windings therein. When the said inner part or filling has attained a sufficient diameter, it is placed in cups or hemispheres of a plastic material and subjected to a high pressure, as already described in the specifications of some of my said former applications.

In order that my said invention may be clearly understood and readily carried into effect, I will now describe the same more fully with reference to the accompanying drawings, in which—

Figure 1 is a view, partly in section, of a playing-ball constructed in accordance with my invention. Fig. 2 shows a view of the inner part or filling prior to its being placed within the plastic or outer shell. Figs. 3 and 4 show said inner part or filling with the elastic material wound or coiled to different diameters and inclosed within the cups.

Referring to the drawings,  $a^x$  is the core or center piece, formed, preferably, of celluloid.

$a$  is the elastic material—for instance, rubber in the form of strips, tape, or bands—

which is wound or coiled around the center piece  $a'$  until it reaches approximately the diameter shown in Fig. 3, when it is inclosed within a very thin but resilient substance, such as celluloid or gutta-percha, in the form of cups or hemispheres  $a^2$ . Outside of this substance the winding of the inner part or core is resumed, and if it is desired to interpose more than one covering of celluloid or other material the inner part or filling may be inclosed in another pair of cups  $a^3$ , preferably when said inner part or filling has reached the diameter shown in Fig. 4. The winding of the elastic material can then be resumed outside the cups or hemispheres  $a^3$ , and when the diameter of the inner part or filling has attained approximately the size shown in Fig. 2 it is inclosed in the outer shell A, of plastic material, such as celluloid or gutta-percha, as shown in Fig. 1. The whole is then subjected to pressure and finished off in the usual manner.

When the balls have been removed from the molds, they only require to be painted, after which they are ready for use.

It is obvious that, if desired, I may interpose the gutta-percha or other material at only one part of the coil or winding, in which case the winding of the elastic material over the gutta-percha at  $a^2$  would be continued until the inner part or core-filling attains the diameter shown in Fig. 2. It will of course be readily understood that the gutta-percha or other cups may be interposed between the elastic windings at any preferred diameter. It will be found that by interposing the gutta-percha or other cups at one or more places between the rubber windings, as above described, the center piece will be more certainly retained in the center of the ball and the weight therefore more evenly distributed than when they are absent.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. A playing-ball comprising in combination a center piece, a plurality of concentric windings thereon of elastic material under tension, and a stiff springy shell interposed between said windings, substantially as described.

2. A playing-ball comprising in combination a center piece, a plurality of concentric

windings thereon of elastic material under severe tension, a spherical shell comprising cups interposed between said windings, and an outer shell inclosing the whole, substantially as described.

3. In a playing-ball the combination of an external shell formed in portions and welded together, a hard center piece, a plurality of windings between said external shell and center piece, and a shell of hard resilient material between each winding and the next, substantially as described.

4. A playing-ball comprising in combination a center piece, a plurality of concentric windings thereon of rubber tape under tension, and a shell interposed between said windings, substantially as described.

5. A playing-ball comprising a core, tense windings of rubber thereon, a thin hard shell upon said windings, a softer layer of resilient material upon said shell, and a hard cover.

6. A playing-ball comprising a core, tense windings of rubber thereon, a thin hard shell upon said windings, a softer layer of resilient material upon said shell, and a hard cover holding said resilient material under compression.

7. A playing-ball comprising a core, tense windings of rubber thereon, a thin hard springy shell upon said windings, tense windings of rubber upon said shell, and a cover of hard plastic material.

8. A playing-ball comprising a core, tense windings of rubber thereon, a hard flexible shell thereon upon said windings, tense windings of rubber upon said shell, and a cover of hard plastic material holding the same under compression.

9. A playing-ball comprising a hard core, a layer of soft resilient material thereon, a thin hard shell upon said layer, tense windings of rubber upon said shell, and a cover of gutta-percha.

10. A playing-ball comprising a core, a layer of soft resilient material thereon, a hard springy shell upon said layer, tense windings of rubber upon said shell, a thin hard shell upon said windings, a layer of softer material upon the last-mentioned shell, and a cover of gutta-percha.

11. A playing-ball comprising a core, a layer of soft rubber thereon, a shell of harder plastic material upon said rubber, a softer layer of resilient material upon said shell, and a hard cover.

12. A playing-ball comprising a core, tense windings of rubber thereon, a gutta-percha shell upon said windings, a softer layer of resilient material upon said shell, and a hard cover.

13. A playing-ball comprising a core, tense windings of rubber thereon, a gutta-percha shell upon said windings, tense windings of rubber upon said shell, and a cover of hard plastic material.

14. A playing-ball comprising a core, tense

windings of rubber thereon, a gutta-percha shell upon said windings, tense windings of rubber upon said shell, and a cover of hard plastic material holding the same under compression.

15. A playing-ball comprising a core, a layer of soft resilient material thereon, a gutta-percha shell upon said layer, tense windings of rubber upon said shell, and a cover of gutta-percha.

16. A playing-ball comprising a core, a layer of soft resilient material thereon, a gutta-percha shell upon said layer, tense windings of rubber upon said shell, and a cover of gutta-percha holding the same under compression.

17. A playing-ball comprising a core, tense windings of rubber thereon, a plurality of thin hard shells interspersed between said windings, and a hard cover.

18. A playing-ball comprising tense windings of rubber, a plurality of thin hard shells interspersed between said windings, and a cover.

19. A playing-ball comprising a core, tense windings of rubber thereon, a plurality of gutta-percha shells interspersed between said windings, and a cover of hard plastic material.

20. A playing-ball comprising a core, tense windings of rubber thereon, a hard flexible shell upon said windings, tense windings of rubber upon said shell, a second shell upon the last-mentioned windings, windings upon said second shell, and a cover of hard plastic material.

21. A playing-ball comprising a resilient sphere, a gutta-percha shell thereon, tense windings of rubber upon said shell, and a cover of gutta-percha.

22. A playing-ball comprising a core, windings of resilient material thereon, a hard springy shell upon said windings, tense windings upon said shell, and a cover of gutta-percha.

23. A playing-ball comprising a sphere of soft rubber, a shell thereon of gutta-percha, a softer layer of resilient material upon said shell, a second shell of gutta-percha upon said softer layer, a layer of soft resilient material upon said second shell, and a hard cover.

24. A playing-ball comprising a core, tense windings of rubber thereon, a gutta-percha shell upon said windings, tense windings of rubber upon said shell, a second shell of gutta-percha upon the last-mentioned windings, tense windings of rubber upon said second shell, and a cover of gutta-percha.

In testimony whereof I have hereunto set my hand, in presence of two subscribing witnesses, this 8th day of August, 1902.

ELEAZER KEMPSHALL.

Witnesses:

EDWARD LAKE,  
W. M. HARRIS.