(No Model.) 2 Sheets—Sheet 1.

H. A. DOTY.

GAME APPARATUS.

No. 422,575. Patented Mar. 4, 1890.

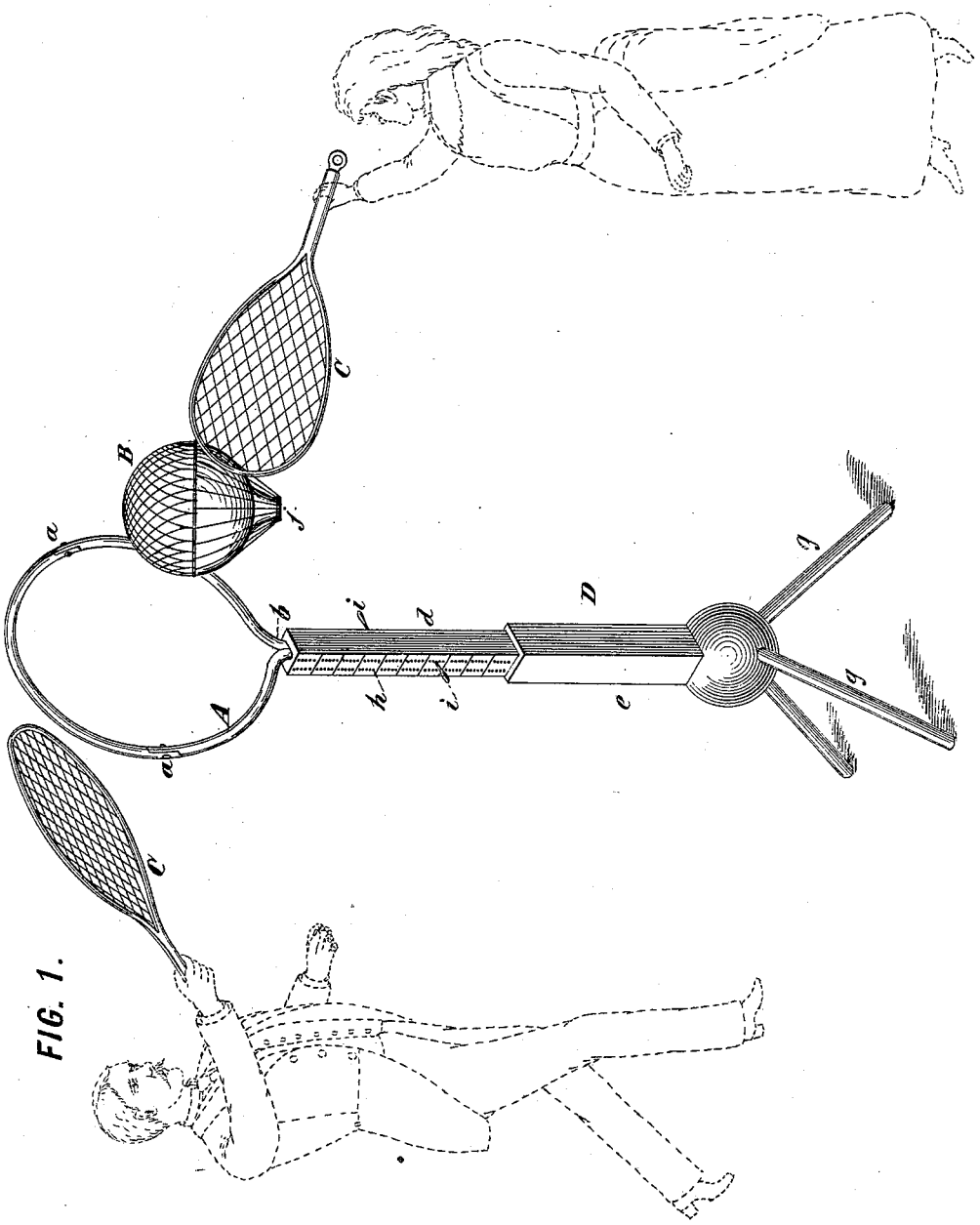

FIG. 1.

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INVENTOR:

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(No Model.) 2 Sheets—Sheet 2.

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FIG. 2.

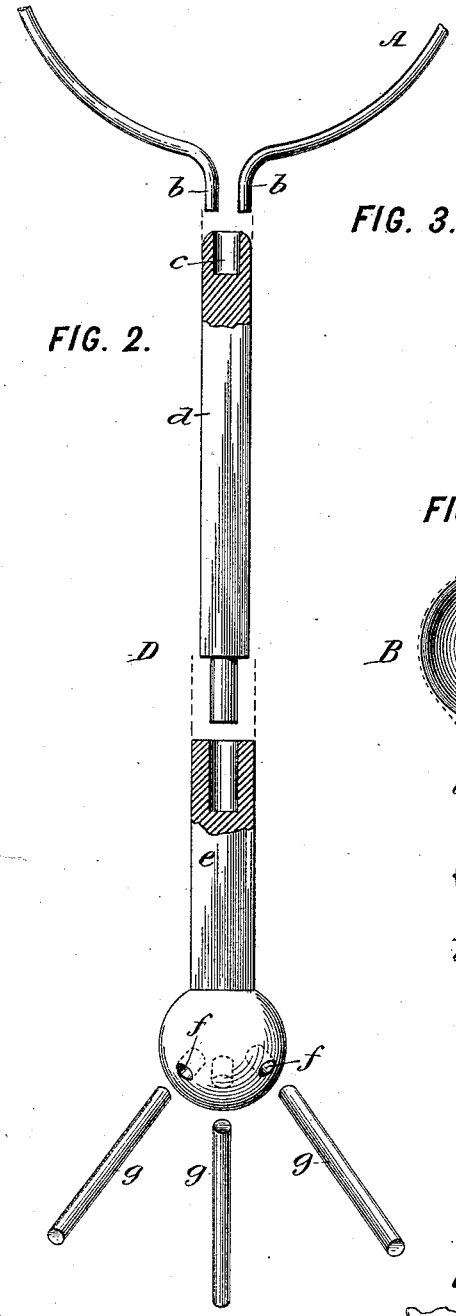


FIG. 3.

FIG. 4.

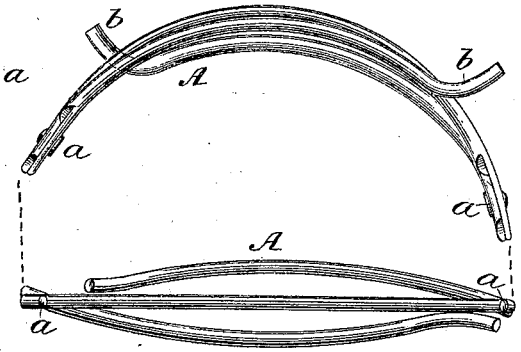


FIG. 5.

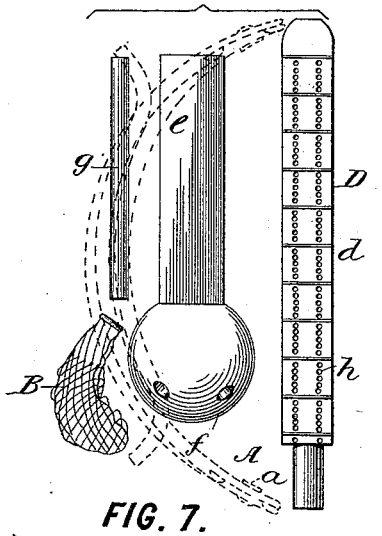


FIG. 6.

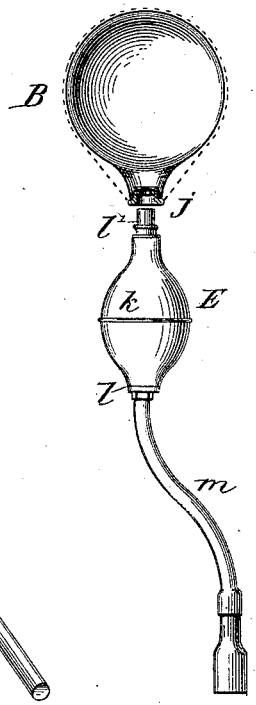


FIG. 7.

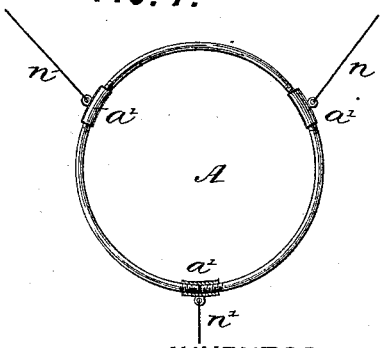
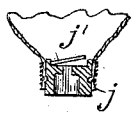


FIG. 8.



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UNITED STATES PATENT OFFICE.

HARRY A. DOTY, OF NEW HAVEN, CONNECTICUT.

GAME APPARATUS.

SPECIFICATION forming part of Letters Patent No. 422,575, dated March 4, 1890.

Application filed May 18, 1889. Serial No. 311,270. (No model.)

To all whom it may concern:

Be it known that I, HARRY A. DOTY, a citizen of the United States, residing in New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Game Apparatus, of which the following is a specification.

This invention relates to games designed especially for parlor or indoor amusement and to give light physical exercise. A light inflated balloon is provided the weight of which approximates that of the atmosphere, and this balloon is batted back and forth between two players by means of rackets of suitable construction, a hoop being provided of somewhat larger diameter than that of the balloon, through which the players drive it by striking it light blows with their rackets. The imponderability of the balloon and its considerable resistance to the air render it impossible to drive it for any considerable distance by a single blow and makes it difficult to force it through the hoop. These facts enable a very interesting game to be played, the counting up of the score being based on the number of blows required to drive the balloon through the hoop from the point of serving and upon the number of times it can be driven between the players back and forth through the hoop.

The apparatus for playing this game consists of the balloon, two or more rackets, the hoop, and suitable means for supporting the hoop at the proper height—say, for example, at a height of from four to six feet from the floor. This means consists, preferably, of a standard resting on the floor. To enable the entire apparatus to be packed compactly in a box or case, this standard is made in sections fitting detachably together, and the hoop, which is of large diameter, is also made in sections which can be folded or taken apart to bring them into small compass. The balloon is constructed with an inlet orifice and valve through which it may be inflated, and in order that it may be inflated with a gas lighter than air a pumping-bellows is provided, consisting, preferably, of a rubber bulb with inlet and outlet valves and a tube for connecting this bulb to the source of gas—as, for example, to any of the gas-burners of the house—whereby the gas may be pumped into the balloon under sufficient pressure to distend it to the requisite size and until it is under sufficient tension to enable it to be batted by the rackets.

Figure 1 of the accompanying drawings is a perspective view of the apparatus, illustrating the manner of playing the game. Fig. 2 is an elevation of a portion of the hoop and sectional standard with the sections separated. Fig. 3 is a vertical section of the hoop. Fig. 4 shows the hoop when its sections have been folded together. Fig. 5 is an elevation of the entire apparatus arranged compactly together as it is when packed for storage or transportation. Fig. 6 is a sectional view of the balloon and the pumping bellows or bulb for inflating it. Fig. 7 is an elevation of a modified construction of the sectional hoop and a modified means for supporting it. Fig. 8 is a fragmentary section of the valved opening or neck of the balloon.

Referring to the drawings, let A designate the hoop, B the balloon, C C the rackets, and D the sectional standard for supporting the hoop.

The hoop A is preferably made of round rattan, in order to make it as light as possible, and since it must be of large diameter, (preferably about eighteen inches,) being considerably larger than the diameter of the balloon, it is made in sections, being preferably divided into thirds and the three parts hinged together by joints *a a*, as shown best in Figs. 2 and 3, so that these three parts may be folded on each other, as shown in Fig. 4. The two opposite ends of the hoop *b b* project downwardly and are made to fit into a socket *c* in the upper end of the standard D.

The standard D is made in sections, consisting, preferably, of an upper section *d* and a lower section *e*, fitting together by a dowel formed on the end of one and entering into a mortise in the end of the other, and the latter section being formed at its bottom, preferably, of spherical shape, and with three (more or less) holes or sockets *f f*, into which the ends of three legs *g g* may be fitted, all as clearly shown in Fig. 2. When the standard and hoop have been taken apart, their sections may be arranged compactly together in the manner indicated in Fig. 5. The section *d* of the standard is formed on opposite

sides with rows of counting-holes *h*, similar to those of a cribbage-board, and pins *i i* are provided to enter these holes. Each player uses the counter on his side of the standard for counting up his score during the progress of the game.

The balloon B is constructed, preferably, of thin india-rubber, being provided at *j* with an aperture formed with a check-valve *j'*, Fig. 8, opening inwardly, through which aperture the balloon may be inflated and the check-valve serving to prevent the escape of the gas with which the balloon is inflated. It is well to provide the exterior of the balloon with a protective covering or netting of soft fabric, as indicated in Fig. 1; but this is not essential. The balloon is designed to be inflated with some gas lighter than air, it being most convenient to use the hydrocarbon illuminating-gas with which most city houses are supplied. To inflate the balloon with this gas it is only necessary to connect it with one of the gas-burners, when, if the gas be under sufficient pressure, it will flow into the balloon and distend it. Ordinarily, however, the pressure in the gas-pipes will be found insufficient to distend the balloon to the proper size and to the desired tension to give it the requisite firmness.

To enable the gas to be forced in under the requisite pressure, I provide a pumping-bellows E, (shown in Fig. 6,) consisting of a rubber bulb *k*, having an inlet-valve *l* at one end and an outlet-valve *l'* at the other, and constructed at the latter end to fit or be joined to the valved aperture *j* of the balloon. A rubber tube *m* is constructed at one end to fit onto the gas-burner and the other end is joined to the valved end *l* of the bulb. By connecting this bulb to the balloon and joining the end of the rubber tube to the gas-burner, and then working the bulb after the manner of a syringe, the gas may be pumped into the balloon to any desired pressure. The balloon should be inflated until the membrane feels moderately tense, and it should be of such size that when this degree of tension is reached it will have a diameter of about seven or eight inches. The bellows E is then disconnected and the balloon is ready for use. When the balloon is thus inflated with a gas lighter than air, the buoyant tendency of this gas will entirely or partially neutralize the weight of the balloon, so that the balloon will then become of either the same specific gravity as the air, tending neither to ascend nor descend, or it will be of less specific gravity, tending to rise toward the ceiling, or by suitable proportioning the balloon may be made slightly heavier than the air, so that it will very slowly fall. After inflating the balloon it may be given the precise degree of buoyancy desired by fastening any little weights—such as buttons—to it, and if by partial leakage of the gas or otherwise the balloon should lose its buoyancy these weights may be removed. The degree of buoyancy imparted to the balloon will somewhat vary the method of playing the game, since if the balloon tends to ascend the players must bat it downward, and if it tends to descend they must bat it upward.

The balloon, if made very light, may be inflated simply with atmospheric air in case the game is to be played with a balloon of slightly greater specific gravity than air. In this case the bellows E may be omitted, the balloon being simply blown up with the mouth.

The rackets should be very light and should be strung with flexible cord or other material, so that they will yield some when striking the balloon and avoid injuring it.

The game is to be played in the following manner: The standard D, being erected, is placed in the middle of the floor with the hoop A in place on it, and the players take positions on the opposite sides of the hoop. The players serve in turn. The server stands about eight feet from the hoop and throws the balloon directly upward or simply releases it and lets it ascend if it be sufficiently buoyant. He then strikes the balloon with his racket in order to drive it toward the hoop. It is practically impossible for him to drive it through the hoop at one blow, owing to the imponderability of the balloon and the resistance of the air afforded by its large surface. Three consecutive strokes are allowed to the server in order to drive the balloon through the hoop. If he fails to drive it through in three strokes, nothing is counted. If he succeeds in putting it through, he counts two, or if he puts it through with only two strokes he counts three points. When the balloon has been thus driven through the hoop, the opposite player is allowed to strike it one blow, in order, if possible, to return it through the hoop, and if he succeeds he counts one point. The server may then strike it one blow to send it back again, and the players may continue to bat it back and forth through the hoop, one stroke only being allowed at each attempt, until one of the players fails to send it through, when the play is ended. Each time the balloon is driven back through the hoop scores one point for the party who puts it through. At the end of the play the balloon is served by the opposite player. If either player is able to drive the balloon downward in passing it through the hoop so that it strikes the floor before being batted by the other player, he counts one additional point. The descent of the balloon to the floor in case it is heavier than the air, or its ascent out of reach of the player in case it is made lighter than the air, ends the play and the balloon passes to the other player to serve. At the end of each play the players mark their scores by means of the pegs *i*. The game may be played by either two or four players, and one hundred or any other number may be selected as the number of points to be scored by the winner.

In the playing of this game the size and

imponderability of the balloon serve to impart sufficient difficulty to its being driven through the hoop to require the exercise of considerable skill or dexterity.

Fig. 7 shows a modified construction of the hoop, the three sections of which are united by tubular metal ferrules a', which screw into the ends of the sections of rattan or other light material of which the hoop is made. Each of these ferrules is formed with an eye on its outer side, and three cords $n\ n\ n'$ are attached to these eyes, the two upper ones being carried up diagonally and being fastened to any suitable provision at the ceiling, while the lower cord n' is connected to the floor. This method of supporting the hoop, however, I consider inferior to that first described, being more troublesome to put up or take down.

I claim as my invention the following defined novel features and combinations, substantially as hereinbefore specified, namely:

1. A game apparatus comprising an approximately imponderable inflated balloon, a hoop of larger internal diameter than the exterior of the balloon, so that the balloon may be forced or thrown through the hoop without necessarily touching it, and a support for said hoop.

2. A game apparatus comprising an inflatable balloon, a hoop of internal diameter larger than the inflated balloon, a support for said hoop, and rackets for batting the balloon through the hoop.

3. A game apparatus comprising a balloon inflated with a gas lighter than air, so that the buoyancy of the gas shall approximately neutralize the weight of the covering of the balloon, and the inflated balloon has substantially the same specific gravity as air, a hoop of larger diameter than the balloon, a support for said hoop, and rackets for batting the balloon through the hoop.

4. The combination, with a stand D, of a hoop A, divided into sections united by butt-hinges, and the outer ends of the terminal sections constructed to be fastened to the top of the stand, whereby when so fastened the abutting of the hinges causes the hoop to retain its circular form.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

HARRY A. DOTY.

Witnesses:
JOSEPHINE DE GROFF DOTY,
FREDK. H. COGSWELL.