

[54] HOCKEY-TYPE GAME APPARATUS

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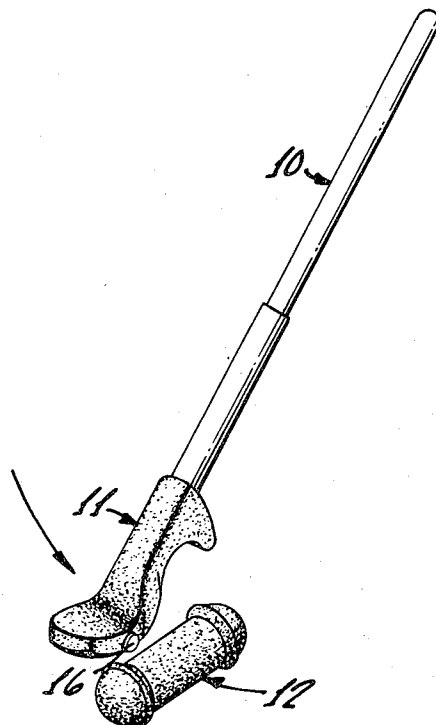
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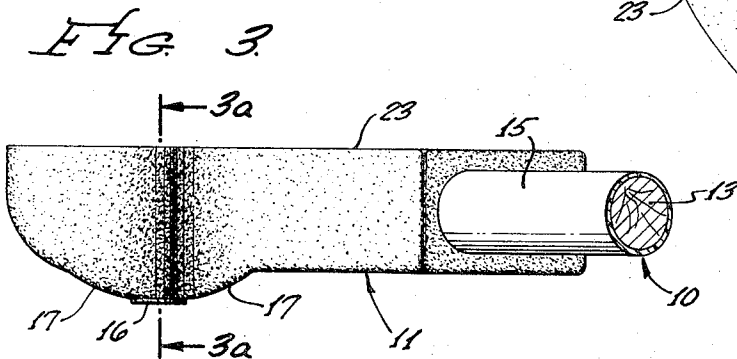
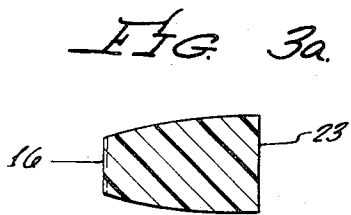
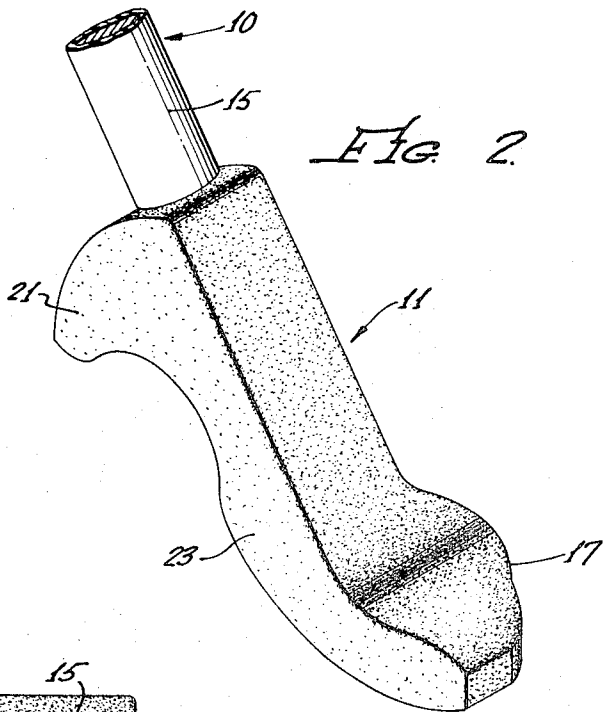
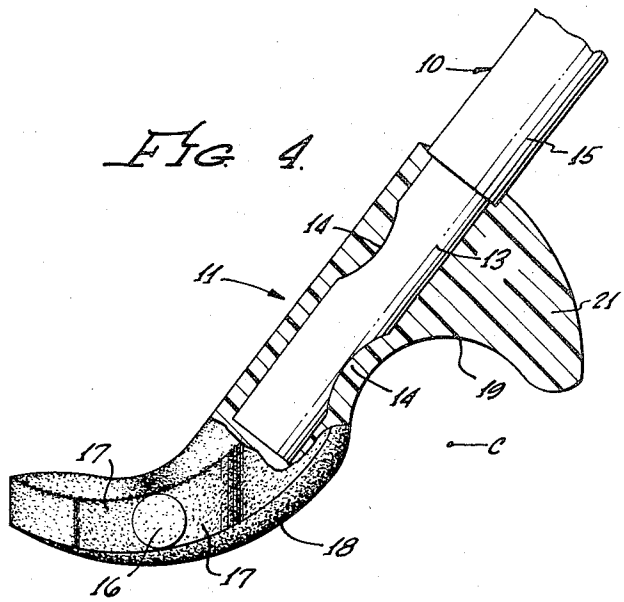
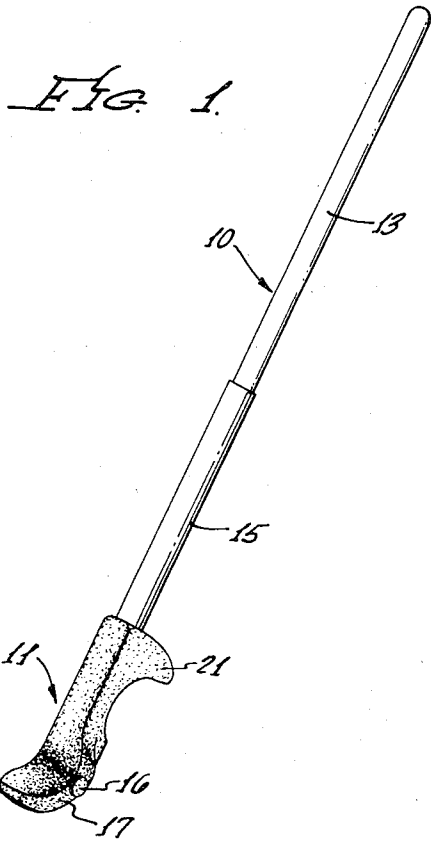
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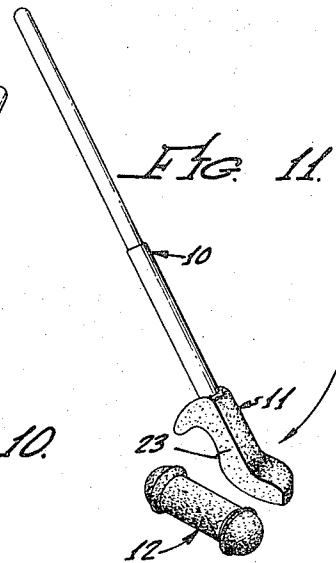
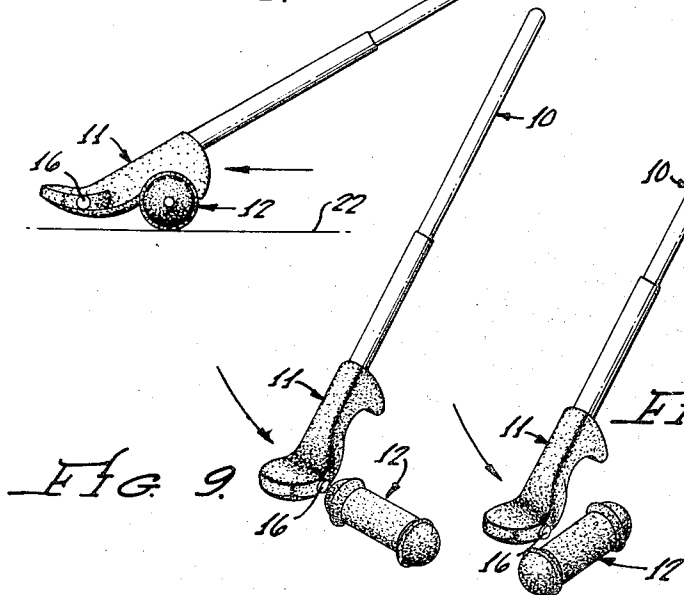
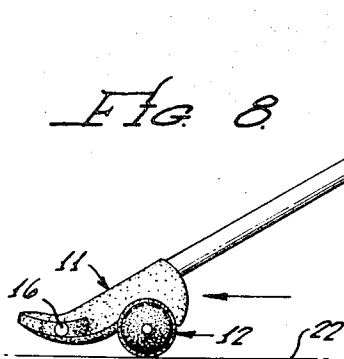
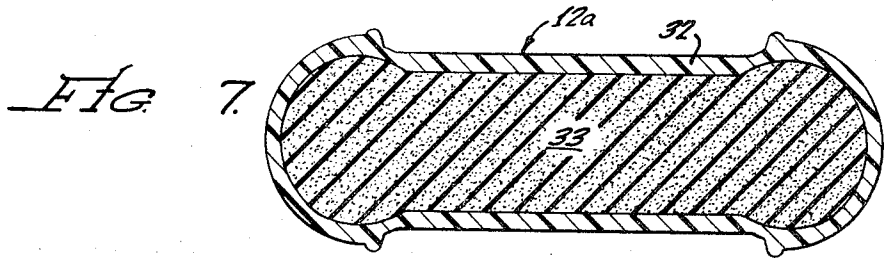
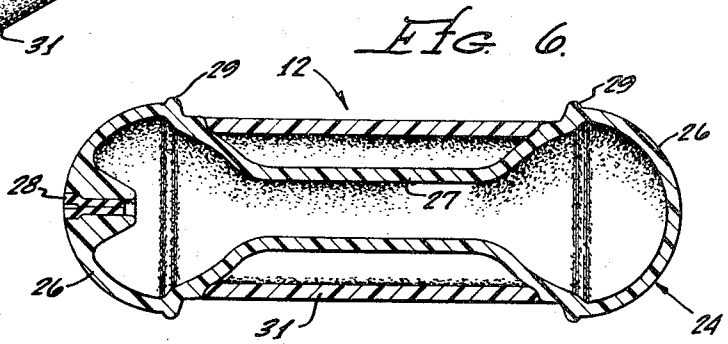
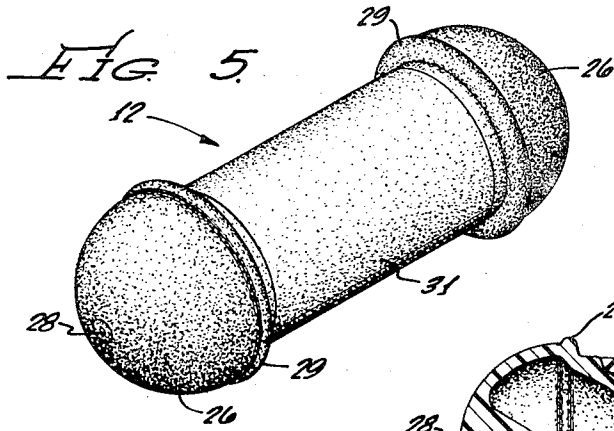
[57] ABSTRACT

Hockey-type game apparatus in which the movable object is elongate or dumbbell-shaped. The "blade" at one end of the hockey stick is shaped to hit the object and also to fit over the central region thereof in order to roll or propel it along the playing surface. The front side of the blade is contoured, and has a protuberant impact point adapted to engage either the end of the object or the center of one side thereof. The rear side of the blade is planar in order to facilitate rearward passing to a teammate. The object is relatively lightweight and resilient, and has a central region adapted to fit rotatably under the blade. One embodiment of the object is inflated, and another is filled with sponge or foam material.

22 Claims, 12 Drawing Figures







## HOCKEY-TYPE GAME APPARATUS

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

This invention relates to the field of games, particularly hockey-type games for outdoor play activity. The game may be played on numerous types of regular or irregular surfaces, both level and sloping. The invention is directed to fullscale apparatus for use by children who are actually running over a large playing surface.

#### 2. Description of Prior Art

Various hockey-type games have been played for centuries, either with substantially spherical objects (such as balls) or with discs (such as ice hockey pucks). The use of balls for movable objects in field hockey produces several important disadvantages when the participants are children, especially children playing on irregular, and sometimes inclined, surfaces. For example, if the game is being played on the slope of a hill, a ball may roll downhill for a great distance when struck. Furthermore, a ball is so regular in its motion that it does not, on a relatively small playing surface when children are participants, create sufficient "action" or play excitement. Discs are unsuitable for use elsewhere than on ice, since they do not move sufficiently far on a playground, or on the street, to stimulate the interest of the participating children.

The following U.S. Pats. are prior art known to applicant: Nos. 825,890; 1,833,531; 1,862,904; 2,432,570; 2,524,546; 2,935,323; 3,228,693; 3,413,755; 3,415,522.

### SUMMARY OF THE INVENTION

The present game is particularly adapted to be played on relatively small outdoor courts, whether improvised or not, and including irregular or inclined courts. The game apparatus comprises an elongate object the surface of which is a generally cylindrical, or other, surface of revolution about the central axis of the object. More particularly, the object is generally dumbbell shaped, with a relatively large-diameter central member between the generally spherical ends. The object is relatively lightweight and is resilient, being preferably inflated and/or elastomeric in order to increase the ability of the object to be propelled. The stick associated with such object comprises a handle and a blade, the latter having a contoured forward face which includes a protuberant impact point adapted to strike selected portions of the object. At its underside, the blade is recessed correspondingly to the shape of the central region of the object, in order that the underside of the blade may be disposed on top of the object to run it or propel it along the surface. At its rear face, the blade is planar.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an isometric view of the hockey stick forming part of the present invention;

FIG. 2 is an enlarged isometric view of the blade portion of the stick, as viewed from the rear side thereof;

FIG. 3 is a top plan view of the showing of FIG. 2; FIG. 3a is a transverse section taken on line 3a-3a of FIG. 3;

FIG. 4 is a side elevation showing the forward face of the blade, a portion of the face being broken away in order to illustrate the manner of connection to the stick;

FIG. 5 is an isometric view of one embodiment of the movable object;

FIG. 6 is a longitudinal central sectional view of the object of FIG. 5;

FIG. 7 is a longitudinal central sectional view of a second embodiment of the object;

FIG. 8 is a view showing the manner in which the blade is employed to propel or push the object along a playing surface;

FIG. 9 is an isometric view showing the manner in which the blade is employed to hit the end of the object;

FIG. 10 shows the blade hitting one side of the object; and

FIG. 11 is an isometric view showing the passing of the object in a rearward direction, using the flat side of the blade.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring first to FIG. 1, the "hockey stick" portion of the present apparatus has a handle 10 and a "blade" 11. It is pointed out that the word "blade" is employed even though the element 11 is not sharp or thin, it being noted that the word "foot" (or even "head") could be used instead of "blade."

Throughout the present specification and claims, the "forward" face of blade 11 is the face which is employed by a player when he is attempting to move the object forwardly (toward the goal guarded by the opposing team). Conversely, the "rear" face is the one which is employed by the player when he passes the object in a rearward direction (toward the goal guarded by his own team).

The blade 11 is specifically adapted to be employed in conjunction with an elongate object 12 of the type shown in perspective in FIG. 5. The object 12 is generally cylindrical and has a length much greater than its diameter. The length of object 12 should be at least about twice, and preferably several times, the diameter thereof.

The illustrated object 12 is shaped somewhat in the manner of a dumbbell having a relatively large-diameter shank or central portion. Thus, for want of a better name the object 12 will sometimes be referred to hereinafter as the "dumbbell."

Proceeding to a detailed description of the "stick" which is formed by the handle 10 and the blade 11, the handle may be a wooden shaft 13 (for example, approximately 32 inches long) which is recessed at opposite sides of the bottom end thereof as shown at 14 in FIG. 4. Mounted coaxially around the lower end of shaft 13 is a plastic sleeve 15, which reduces the possibility of breakage of the stick when it strikes the stick held by another player.

The lower ends of sleeve 15 and of shaft 13 are embedded in blade 11, which blade is preferably molded of plastic. Because of the presence of the recesses 14 in the shaft 13, the plastic enters the recesses and prevents the shaft from being pulled out of the blade.

Blade 11 should be light, weighing much less than one pound, in order to minimize the risk of injury to any player.

To increase the skill which is required in order to move the dumbbell 12 in a forward direction, the forward face of blade 11 is highly contoured in a particular manner. The contouring is such that it is not normally practical for the player to merely dispose the forward blade face in engagement with one side of dumbbell 12 and then roll such dumbbell along the playing surface. Instead, to move the dumbbell forwardly, in an efficient manner, the player is normally obliged: (1) to strike a protuberant portion or impact point 16 of the blade against one end of the dumbbell, as shown in FIG. 9, or (2) to strike the protuberant portion or impact point 16 against the center of one side of dumbbell 12, as shown in FIG. 10, or (3) to engage the bottom of the blade with the upper surface of the dumbbell as shown in FIG. 8 and as described subsequently.

The protuberant portion or impact point 16 is disposed relatively remote from the shaft 13, that is to say relatively near the ground, and has a small-area striking surface which preferably lies in a vertical plane parallel to that of the shaft. As best shown in FIG. 3, the impact point 16 is disposed forwardly of the main body of the forward face of the blade, adjacent a rounded or bulging portion 17 of the blade.

The underside of the blade 11, at its lowermost portion, is downwardly convex as shown at 18 in FIG. 4, and such convex surface merges smoothly with an upwardly concave surface 19. Surface 19 is circular about a center C (FIG. 4) and has a radius only slightly larger than that of the central region of the dumbbell 12.

The upper region of the concave surface 19 is defined by a protuberance 21 which extends downwardly and generally vertically from the blade portion at the lower region of shaft 13, but does not extend downwardly sufficiently far to interfere with striking of the dumbbell (as shown, for example, in FIGS. 9, 10 and 11).

Referring to FIGS. 4 and 8, one way in which the dumbbell 12 is propelled along the playing surface (which is indicated at 22), is to engage the circular surface 19 with the central region of the dumbbell and then push forwardly on the handle 10 while maintaining the surface 19 in contact with the dumbbell. The dumbbell then rotates relative to surface 19 in the manner of a shaft in a bearing. While the dumbbell is thus propelled (forwardly), handle 10 is inclined upwardly from the playing surface 22, as shown in FIG. 8. Also, while the dumbbell is thus propelled, the protuberance 21 is behind the dumbbell.

Another way in which the dumbbell may be moved, as indicated in FIGS. 4 and 8, is to first engage the downwardly convex surface 18 with the upper surface of the dumbbell while simultaneously moving the blade rapidly forwardly. The surface 18 then is of assistance in causing the surface 19 to seat on the upper side of the dumbbell, following which the rapid forward motion of the blade is continued. At the latter portion of the stated operation, handle 10 is held quite low, so that protuberance 21 is effective to propel the dumbbell forwardly beneath surface 18 and away from the blade.

Referring to FIG. 9, the dumbbell may also be sent along the playing surface in a direction longitudinal to the dumbbell, like a bullet is shot out of a gun. This is accomplished (as stated above) by striking the impact point 16 forcibly against the center of one end of the dumbbell, along a line longitudinal thereto.

Referring next to FIG. 10, another way in which the dumbbell is propelled forwardly is (as indicated above) by striking the protuberant portion or impact point 16 against the exact center of one side of the dumbbell 12. If the exact center, or substantially the exact center, is thus engaged, the dumbbell will roll in a relatively straight manner as desired by the player. However, if the swinging motion of the stick is not precise and accurate, the impact point 16 will not engage the center of the dumbbell but instead will engage one end portion thereof, resulting in a somewhat erratic motion of the dumbbell.

The above-described motions require a substantial degree of precision or skill in order to achieve the maximum degree of forward motion of the dumbbell.

Referring next to FIGS. 2 and 11, it is pointed out that the rear face 23 of blade 11 is planar, being disposed in a vertical plane parallel to that of handle 10. Thus, the blade 11 is asymmetrical about a plane through the longitudinal axes of the blade and handle 10. The purpose of making the rear face 23 planar is to permit the player to pass the dumbbell 12 rearwardly to a teammate, with a minimum of skill or effort. Thus, for example, the face 23 may be engaged with one side of the dumbbell 12 and the latter rolled along the ground while the face 23 is maintained in engagement therewith.

Another major type of rearward movement is effected when a group or "huddle" of players are each trying to gain sole control of the dumbbell. A player can then place his blade in the position of FIG. 8, and then pull his stick rearwardly. This creates less risk of injury than would be present if a conventional type of hockey stick were used.

#### DESCRIPTION OF THE MOVABLE OBJECT OR "DUMBBELL"

Referring to FIGS. 5 and 6, the movable object is generally cylindrical and has, as indicated above, a length much greater than its diameter. As above stated, the length is at least about twice, and preferably several times, the diameter. As an example, the length may be about 7 inches, the maximum diameter about 2½ inches.

The weight of the object is less than one pound, preferably about 7 ounces.

The object 12 is resilient and bouncy, being adapted to bounce to a substantial extent.

The surface of the object 12 is a surface of revolution about the longitudinal axis thereof.

Stated more definitely, the movable object is generally dumbbell shaped, with a relatively large diameter shank. In the embodiment of FIGS. 5 and 6, the object has a dumbbell-shaped resilient or elastomeric bladder 24 formed of rubber or plastic. Such bladder has two generally spherical ends 26 and an integral relatively small diameter shank or center portion 27. The bladder is adapted to be inflated, there being a conventional air valve 28 located at one end in order to receive an inflation needle.

An external annular bead or circumferential rib 29 is formed integrally around the equator of each spherical end, in a plane perpendicular to the axis of the bladder. Such bead 29 is adapted to roll along the ground when the object is moving sideways.

The diameter of each bead 29 is identical to the diameter of the other bead. Correspondingly, the diame-

ter of each spherical end is identical to the diameter of the other spherical end. Therefore, the object tends to roll in a straight line instead of along a curve.

A hollow cylindrical sleeve 31, formed of a relatively rigid and low-friction material (such as a suitable plastic), is mounted coaxially around the dumbbell and is seated between inner portions of the spherical ends 26. The diameter of the illustrated sleeve 31 is substantially greater than that of shank 27, in order to facilitate insertion of the bladder through the sleeve 31 (such insertion occurring prior to inflation of the bladder).

Sleeve 31 is particularly adapted to rotate relative to surface 19 of the blade or foot 11 (FIG. 4), since the sleeve 31 has an outer diameter slightly less than that of the surface 19. Because the sleeve 31 and the blade 11 are both formed of relatively low-friction and somewhat hard materials, the friction created when the sleeve rotates against the surface 19 is low.

Referring next to FIG. 7, a second embodiment of the object of dumbbell 12 is illustrated. In the embodiment of FIG. 7, the external contour is substantially identical to that of the dumbbell shown in FIG. 6, but the spherical ends and the sleeve 31 are replaced by a single integral "skin" 32 formed of a suitable soft plastic. The plastic is sufficiently soft that no injury to the child will be effected if he is struck, but the plastic is also sufficiently low-friction to permit the shaft-in-bearing action illustrated in FIG. 8.

The skin 32 is not inflated in the embodiment of FIG. 7, although inflation would also be possible. Instead, the skin is filled with a suitable resilient sponge rubber or sponge plastic material indicated at 33.

Any desired number of children may play the game, using suitable "rules" such as the following: The blade 11 of the hockey stick may not be lifted above the knees of the participant. The movable object or dumbbell 12 may only be moved forwardly using either the front face of the blade 11, as shown in FIGS. 9 and 10, for example, or else by using the underside thereof as shown in FIG. 8. As stated heretofore, the rear face of the blade may only be used for passing the object 12 back toward a teammate who is located between the player and the player's own goal. Suitable goal posts or nets may be set up at opposite ends of the field, in any desired manner. The playing field may be any surface (including somewhat rough and sloping surfaces) of any desired size.

The described equipment may be manufactured in numerous ways known to the art. For example, the sleeve 31 may be extruded, and the bladder 24 flow molded, or slush or rotation molded. The dumbbell shown in FIG. 7 may be molded of a suitable process whereby the "skin" of sponge material is caused to be relatively solid. The blade of the hockey stick may be injection molded after the end of shaft 13 is inserted therein. The blade may also be blow molded, or formed in other ways.

The blade 11 of the hockey stick, and/or the movable object or dumbbell 12, may be formed of numerous types of plastic and other materials. For example, the following may be used: ethylene vinyl acetate, polyvinyl chloride, polyethylene, ABS (acrylonitrile butadiene styrene) foam, and natural or synthetic rubbers. The blade 11 should be made of the hardest material, the sleeve 31 of medium hard material, and the bladder 24 of the softest material.

It is possible to make the element 24 as two sub-elements, suitably joined in the center, instead of as a single element.

The foregoing detailed description is to be clearly understood as given by way of illustration and example only, the spirit and scope of this invention being limited solely by the appended claims.

I claim:

1. Hockey-type game apparatus, which comprises:
  - a. a lightweight elongate object shaped to be propelled along a playing surface in a direction longitudinal to said object, and also shaped to roll along said playing surface in a direction lateral to said object, said object having a length greatly in excess of the diameter thereof, and
  - b. a hockey stick having an elongate shaft adapted to be held by a player, said stick also having at one end of said shaft an elongate blade shaped to strike said object to either propel it along said playing surface in a direction longitudinal to said object, or to roll it along said playing surface in a direction lateral to said object, said blade having an upwardly concave region at the lower portion thereof so as to fit downward over at least the central portion of said object and thereby move said object along the playing surface in unison with said blade, the relationship between said shaft and said upwardly concave region being such that, when said shaft is held in front of the player, and in upwardly inclined relationship to the playing field, with said upwardly concave region seated over said elongate object, a portion of said blade is behind said object whereby the player may push said object forwardly in a controlled manner.
2. The invention as claimed in claim 1, in which the length of said object is at least about twice the diameter thereof.
3. The invention as claimed in claim 1, in which the length of said object is on the order of several times the diameter thereof.
4. The invention as claimed in claim 1, in which said object is resilient and bouncy.
5. The invention as claimed in claim 1, in which said object is generally dumbbell-shaped.
6. The invention as claimed in claim 1, in which the exterior surface of said object is a surface of revolution about the longitudinal axis of said object.
7. The invention as claimed in claim 1, in which said blade of said hockey stick has a horizontally projected small-area impact point with a generally vertical face adapted to strike said object at one end thereof or at the central region of one side thereof, so as to cause said object to move generally along the surface of the playing field.
8. The invention as claimed in claim 1, in which said blade has a generally convex side face shaped to effect said striking of said object and also shaped to make it difficult for the player to merely hold said face against the object and roll it laterally.
9. Hockey-type game apparatus, which comprises:
  - a. a lightweight elongate object, the length of said object being much greater than the diameter thereof,

said object being shaped to roll along a playing surface in a direction lateral to said object, and

- b. a hockey stick having a shaft and having an elongate blade at one end of said shaft,

said blade being non-symmetrical about a plane through the longitudinal axes of said blade and said shaft,

said blade being adapted to strike said object, said blade having an upwardly concave region at the lower portion thereof,

said upwardly concave region being shaped to fit downwardly over the central horizontal portion of said object in order to effect, when said blade is moved longitudinally and parallel to said playing surface, rolling of said object along said playing surface.

10. The invention as claimed in claim 9, in which said object weighs less than 1 pound, and is formed at least partially of resilient and bouncy material.

11. The invention as claimed in claim 10, in which said object is generally cylindrical, and is about 2½ inches in diameter and about 7 inches in length.

12. The invention as claimed in claim 9, in which said blade has a generally horizontally protruding impact region at the forward face thereof, said impact region being adapted to strike said object either at one end thereof or at the central region of one side thereof so as to cause the object generally to roll or slide along the surface of said playing field.

13. The invention as claimed in claim 9, in which said object is formed at least partially of resilient material, and is generally dumbbell-shaped.

14. The invention as claimed in claim 9, in which said object comprises an elastomeric inflated bladder having a relatively small-diameter central portion and relatively large-diameter end portions.

15. The invention as claimed in claim 9, in which said object comprises a skin having a cylindrical central region which is connected at each end to an enlarged end region, each of said end regions being of the same diameter as the other and being shaped to roll along the playing surface, in which said skin is filled with sponge or foam material, and in which said upwardly-concave region of said blade is shaped to fit downwardly over said central region and to permit said central region to rotate relative to said blade.

16. Hockey-type game apparatus, which comprises:

- a. a lightweight elongate object, the length of said object being much greater than the diameter thereof,

said object being shaped to roll along a playing surface in a direction lateral to said object, and

- b. a hockey stick having a shaft and having a blade at one end of said shaft,

said blade being adapted to strike said object, said blade having an upwardly-concave region at the lower portion thereof,

said upwardly-concave region being shaped to fit downwardly over at least a portion of said elongate object in order to effect, when said blade is moved forwardly and parallel to said playing surface, rolling of said object along said playing surface,

said blade being contoured on the forward face thereof, and planar on the rear face thereof, whereby to make it relatively difficult for the

player to roll said object forwardly but relatively easy for the player to roll said object rearwardly.

17. Hockey-type game apparatus, which comprises:

- a. a lightweight elongate object, the length of said object being much greater than the diameter thereof,

said object being shaped to roll along a playing surface in a direction lateral to said object, said object having first and second external annular beads near the end portions thereof, each of said beads having the same diameter as the other of said beads,

said beads being adapted to engage the playing surface and roll or slide therealong, and

- b. a hockey stick having a shaft and having a blade at one end of said shaft,

said blade being adapted to strike said object, said blade having a upwardly-concave region at the lower portion thereof,

said upwardly-concave region being shaped to fit downwardly over at least a portion of said elongate object in order to effect, when said blade is moved forwardly and parallel to said playing surface, rolling of said object along said playing surface.

18. Hockey-type game apparatus, which comprises:

- a. a lightweight elongate object, the length of said object being much greater than the diameter thereof,

said object being shaped to roll along a playing surface in a direction lateral to said object,

said object comprising an elastomeric inflated bladder having a relatively small-diameter central portion and relatively large-diameter end portion and a cylindrical sleeve which is mounted coaxially over said central portion, and

- b. a hockey stick having a shaft and having a blade at one end of said shaft,

said blade being adapted to strike said object, said blade having an upwardly-concave region at the lower portion thereof,

said upwardly-concave region of said blade being shaped to fit downwardly over said cylindrical sleeve and to permit said sleeve to rotate relative to said blade in order to effect, when said blade is moved forwardly and parallel to said playing surface, rolling of said object along said playing surface.

19. Hockey-type game apparatus, which comprises:

- a. a lightweight elongate object, the length of said object being much greater than the diameter thereof,

said object being shaped to roll along a playing surface in a direction lateral to said object, said object weighing less than one pound and being formed at least partially of resilient and bouncy material,

said object being generally cylindrical and having enlarged end regions adapted to roll or slide along the playing surface, and

- b. a hockey stick having a shaft and having a blade at one end of said shaft,

said blade being adapted to strike said object,

said blade having an upwardly-concave region at the lower portion thereof,  
 said upwardly-concave regions being shaped to fit downwardly over at least a portion of said elongate object in order to effect, when said blade is moved forwardly and parallel to said playing surface, rolling of said object along said playing surface,  
 the central region of said object being adapted to fit upwardly into said upwardly-concave region of said blade and to rotate relative to said upwardly-concave region of said blade,

said blade having a protuberant impact region at the forward face thereof,  
 said impact region being adapted to strike said object either at one end thereof or at the central region of one side thereof,  
 said blade being contoured on the forward face thereof, and planar on the rear face thereof, whereby to make it relatively difficult for the player to move said object forwardly but relatively easy for the player to move said object rearwardly.

**20. Hockey-type game apparatus, which comprises:**

a. a lightweight elongate object,  
 the length of said object being much greater than the diameter thereof,  
 said object being shaped to roll along a playing surface in a direction lateral to said object, and

b. a hockey stick having a shaft and having a blade at one end of said shaft,  
 said blade being adapted to strike said object,  
 said blade having an upwardly-concave region at the lower portion thereof,  
 said upwardly-concave region being shaped to fit downwardly over at least a portion of said elongate object in order to effect, when said blade is moved forwardly and parallel to said playing surface, rolling of said object along said playing surface,

said blade having a downwardly-convex surface at the lower side thereof and relatively remote from said shaft,  
 said downwardly-convex surface merging with the upwardly-concave surface of said upwardly-concave region,  
 said upwardly-concave region of said blade being defined in part by a downwardly-protuberant portion of said blade.

**21. Hockey-type game apparatus, which comprises:**

a. a lightweight elongate object shaped to be propelled along a playing surface in a direction longitudinal to said object, and also shaped to roll along said playing surface in a direction lateral to said object,  
 said object having a length greatly in excess of the diameter thereof,

said object having circumferential ribs near the end portions thereof,  
 said ribs being adapted to roll along the playing surface when the object is rolling laterally, and

b. a hockey stick having an elongate shaft adapted to be held by a player,  
 said stick also having at one end of said shaft an elongate blade shaped to strike said object to either propel it along said playing surface in a direction longitudinal to said object, or to roll it along said playing surface in a direction lateral to said object,  
 said blade being upwardly concave at the lower portion thereof so as to fit downward over at least the central portion of said object and thereby move said object along the playing surface in unison with said blade.

**22. Hockey-type game apparatus, which comprises:**

a. an elongated shaft adapted to be held forwardly of the player at an incline to the playing field, with the handle end of the shaft near the player and the distal end of the shaft remote from the player and near the playing field,

b. a protuberance which projects laterally of said shaft near the distal end thereof,

c. means to form an impact region adapted to strike an elongated object to propel the same along the playing field in either sliding or rolling manner,  
 said impact means (c) being substantially more remote from said handle end of said shaft than is said protuberance means (b), the spacing between said impact means and said protuberance means being such that said elongated object may be rotatably seated, in controlled manner, in front of said protuberance means and behind said impact means when said protuberance means is extending downwardly relative to the inclined shaft and when said elongated object is supported on the playing field, and

d. a lightweight elongated object shaped to roll smoothly along said playing field in a direction lateral to the axis of said object, and also adapted to be propelled slidably along said playing field with its longitudinal axis parallel to the direction of propulsion,  
 whereby said object may be moved on said playing field in several ways both controlled and uncontrolled:

1. one such way being in rolling, controlled manner when seated in front of said protuberance means and behind said impact means,
2. another such way being in rolling, uncontrolled manner when launched by said protuberance means, and
3. another such way being in sliding or rolling, uncontrolled manner, when struck by said impact region.

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