Oct. 1, 1963 H. E. KIMBRELL 3,105,683

PRACTICE DEVICE

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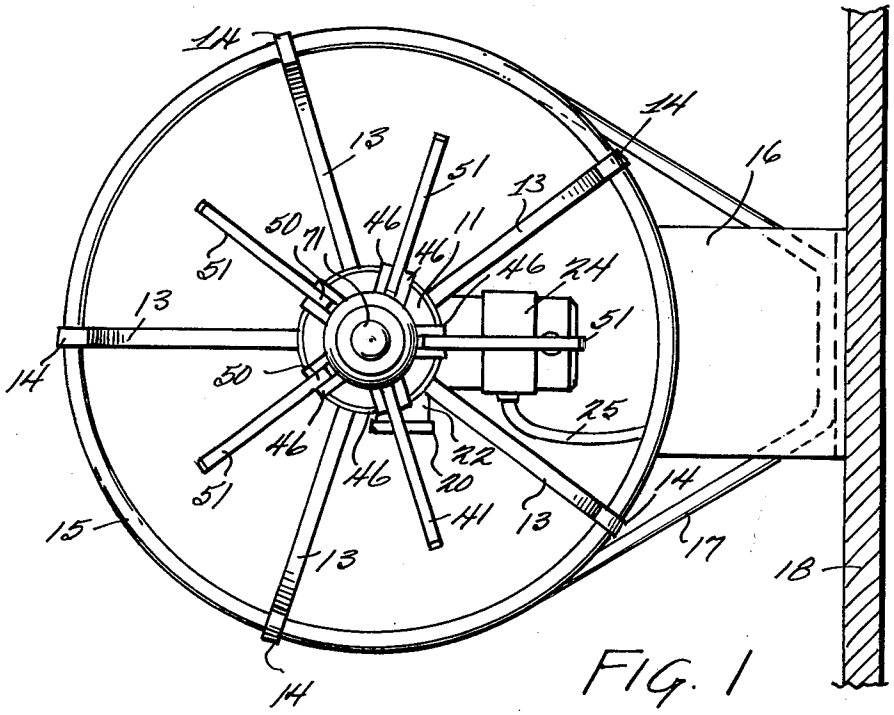


FIG. 1

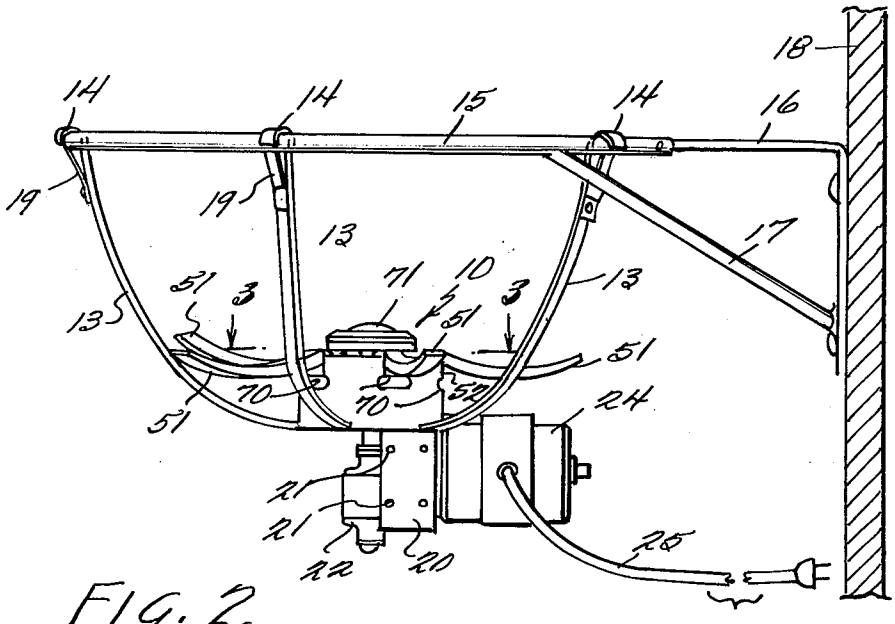


FIG. 2

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FIG. 3

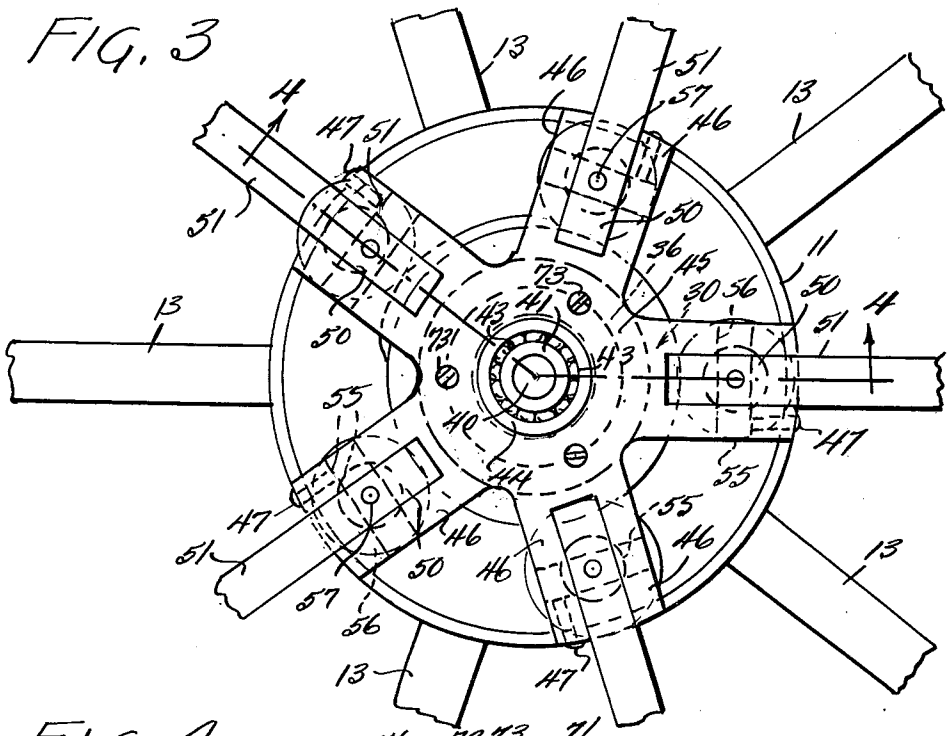


FIG. 4

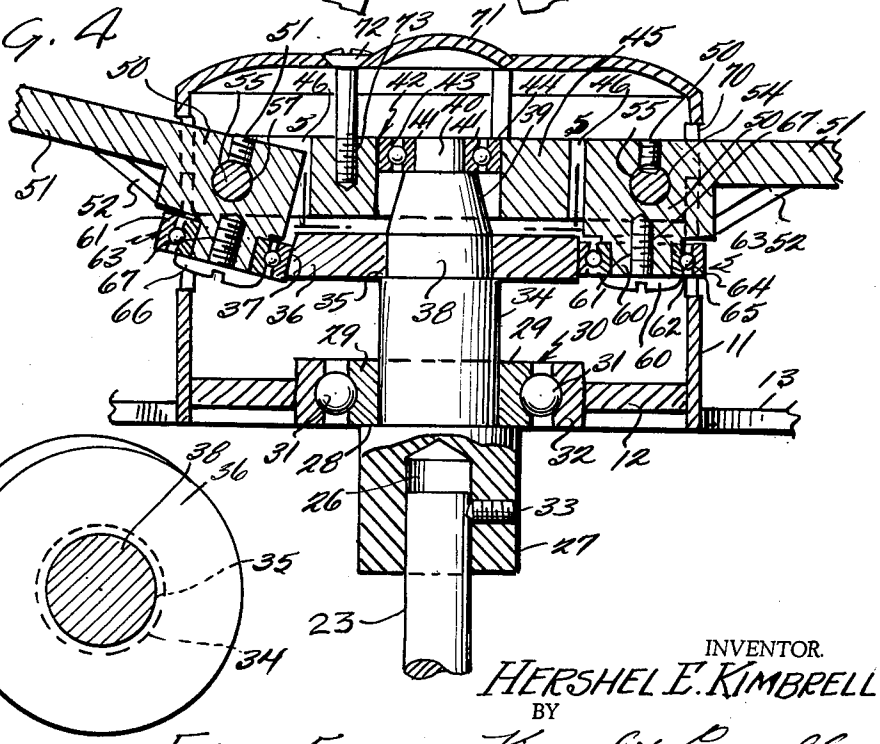


FIG. 5

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3,105,683

PRACTICE DEVICE

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5 Claims. (Cl. 273—1.5)

This invention relates to a practice device and more particularly to a device for practicing the game of basketball, volleyball, or the like.

An important object of the invention is the provision of a device adapted to be positioned interiorly of a conventional basketball ring which will cause a basketball or the like tossed through the ring to be ejected out of the ring in a wide variety of directions, speeds, and times.

An additional object of the invention is the provision of such a device which, when a basketball is thrown through the ring, will eject the ball in a random manner with each ejection differing in accordance with the particular position of the ejecting apparatus at the time the ball falls through the ring.

A further object of the invention is the provision of a device which is particularly adaptable for basketball players in tipping the ball, rebounding of the ball, which increases the dexterity of the fingers, catching the ball, passing the ball after rebounding, jumping or spring, timing, body and arm position, endurance and coordination of the individual, thus to improve the all around play of an individual athlete.

A further and more specific object of the invention is the provision of a device adapted to be mounted within a conventional basketball ring which includes a plurality of rotating fingers, which may be rotated at any desired speed, and which are actuated by means of a cam or other suitable mechanism periodically to lift and eject a ball tossed interiorly of the ring, the position of the ball in the ring, and the position of the rotating mechanism determining the direction, time, and distance of ejection of a ball.

Still other objects reside in the combinations of elements, arrangements of parts, and features of construction, all as will be more fully pointed out hereinafter and disclosed in the accompanying drawings wherein there is shown a preferred embodiment of the instant inventive concept.

In the drawings:

FIGURE 1 is a top plan view of one form of device embodying the instant inventive concept shown in position interiorly of a conventional basketball ring.

FIGURE 2 is a side elevational view of the structure of FIGURE 1.

FIGURE 3 is an enlarged sectional view taken substantially along the line 3—3 of FIGURE 2 as viewed in the direction indicated by the arrows, parts thereof being broken away.

FIGURE 4 is a sectional view taken substantially along the line 4—4 of FIGURE 3 as viewed in the direction indicated by the arrows; and

FIGURE 5 is a sectional view taken substantially along the line 5—5 of FIGURE 4 as viewed in the direction indicated by the arrows showing the cam structure of the device.

Similar reference characters refer to similar parts throughout the several views of the drawing.

Having reference now to the drawings in detail, the device of the instant invention is generally indicated at **10**, and includes a housing **11** which includes a base plate **12**. Housing **11** is adapted to be supported by means of a plurality of radially extending fingers or straps **13** which are provided at their extremities with hooks **14** engageable over a conventional basketball ring **15**. Ring **15** is supported by a bracket **16** and diagonal braces **17** from a board **18** or the like. Resilient retaining

clips **19** may be provided adjacent each hook **14**, if desired.

A flange **20** depends from base **12**, and has secured thereto as by means of bolts **21** a reduction gear box **22** from which projects a vertical drive shaft **23**, shaft **23** being driven by a fractional horsepower motor **24** which is supplied with power through an electrical cord **25**.

Drive shaft **23** extends into a bore **26** in a shaft **27** which is formed with a shoulder **28** upon which seats the inner race **29** of a bearing assembly generally indicated at **30**, and including balls **31**, which engage between inner race **29** and an outer race **32** which is fixedly secured in a central opening in base **12**. A set screw **33** serves to secure shaft **23** within bore **26**.

A reduced portion **34** of shaft **27** terminates in a shoulder **35** upon which rests a cam **36** having an inclined high dwell portion **37**, as best shown in FIGURES 4 and 5. Cam **36** surrounds a further reduced portion **38** of shaft **27** which portion merges into a tapered frustoconical end **39** terminating in a shaft stem **40** to which is secured the inner race **41** of a bearing assembly generally indicated at **42** and provided with balls **43**. The outer race **44** of bearing assembly **42** is fixedly secured to a hub **45** comprising an integral part of housing **11**, and provided with radially extending pairs of lugs **46**, the ends of lugs **46** being secured to the wall of casing **11** as by means of bolts **47**.

Pivotally secured between each pair of lugs **46** is a block member **50** comprising the end of an arcuate ball propelling arm **51**, the arm being reinforced by means of an angularly disposed reinforcing bracket **52**. The pivotal supporting means comprises a pivot pin **54** extending through a suitable bore **55** in each block **50**, and aligned bores **56** in each of lugs **46**. A set screw **57** serves to hold each block **50** and its associated arm **51** in rigid relation with the pivot pin **54**.

The lower portion of each block **50** is provided with an integral cylindrical stud **60** having a threaded bore **61** therein which is surrounded by the inner race **62** of a ball bearing assembly generally indicated at **63**. The outer race **64** encloses ball **65** and engages at its inner extremity the surface of rotatable cam **36**. The head **66** of a screw **67** engaging in threaded bore **61** serves to secure the bearing assembly in position.

The outer portions of blocks **50** and the radially extending arms **51** extend through keyhole slots **70** in the side walls of casing **11**, and project outwardly to a point interiorly of the bottom of the ring.

A cap **71** is secured as by means of screws **72** engaging in threaded bores **73** in hub structure **45**, and provides protection for the assembly.

From the foregoing the use and operation of the device should now be readily understandable. The apparatus **10** is first positioned interiorly of the ring **15** and supported therefrom by means of the hooks **14**. Cord **25** is then plugged into any suitable socket, and, the motor **24** is started in any desired manner as by the use of a conventional switch, or, alternatively, merely by plugging the cord into an electrical outlet.

Actuation of the motor **24** causes rotation of shaft **23** and hence shaft **27** which in turn rotates cam **36**, shaft **27** rotating in the bearing assemblies **30** and **42**. As cam **36** rotates its high dwell **37** progressively engages one of the bearing assemblies **63** to tilt the associated block in its associated arm **51** rapidly upwardly as shown in FIGURE 2. The arms are thus successively raised, and a ball tossed through the ring **15** striking the cover **71** or one of the arms **51** will remain quiescent, for an indeterminate period until the arm in contact therewith is raised by the high dwell **37** of the cam. The duration of time before the ball is impacted to be ejected from the ring is determined by the relative position of the cam **36**, and

the angle at which the ball is ejected in turn depends on its position in relation to the arcuate arm 51, whether in the concave portion thereof or adjacent the tip or inner end. Since the shaft 23 rotates relatively rapidly, the time interval is limited and the probability is that the ball is still in motion when the arm adjacent which it is at the time is lifted. In consequence the path of ejection of the ball, of a distance, and the angle may not be determined in advance. As the ball is ejected the player may tip the same back into the ring, catch the ball, pivot and throw, driving the ball or any other activity normally associated with the ball rebounding from the rim of a basket.

From the foregoing it will now be seen that there is herein provided an improved practice device, which accomplishes all the objects of this invention, including others of great practical utility.

As many embodiments may be made of this inventive concept, and as many modifications may be made in the embodiment hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative, and not in a limiting sense.

I claim:

1. A basketball practice device comprising a casing, means adapted to support said casing from a conventional basketball ring, an electric motor associated with said casing, a drive shaft driven by said motor, a shaft rotatable in said casing connected to said drive shaft, a plurality of radially extending arms pivotally mounted for movement in a vertical plane in said casing, said casing having slots

therein through which said arms extend, and a cam in said casing rotated by said shaft in said casing to impart sequential vertical movement to said arms to eject a ball dropped through the ring.

2. The structure of claim 1 wherein said casing includes a base having an opening therein and a bearing in said opening in which said shaft in said casing is journalled, a hub having a central opening therein in which the top of said shaft in said casing is journalled, and a plurality of pairs of radially extending lugs, an arm being pivoted between each pair.

3. The structure of claim 2 wherein each arm has a block integrally formed therewith, the pivotal mounting of the arms extending through the block, and each block includes a depending circular boss having the inner race of a bearing assembly fixedly secured thereto, the outer race being rotatable and engaged by said cam.

4. The structure of claim 3 wherein said casing is provided with a cover fixed to said hub.

5. The structure of claim 4 wherein the means adapted to support said casing from the ring comprise a plurality of radially extending arcuate fingers, each finger having a hook on the end thereof.

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