

Jan. 9, 1968

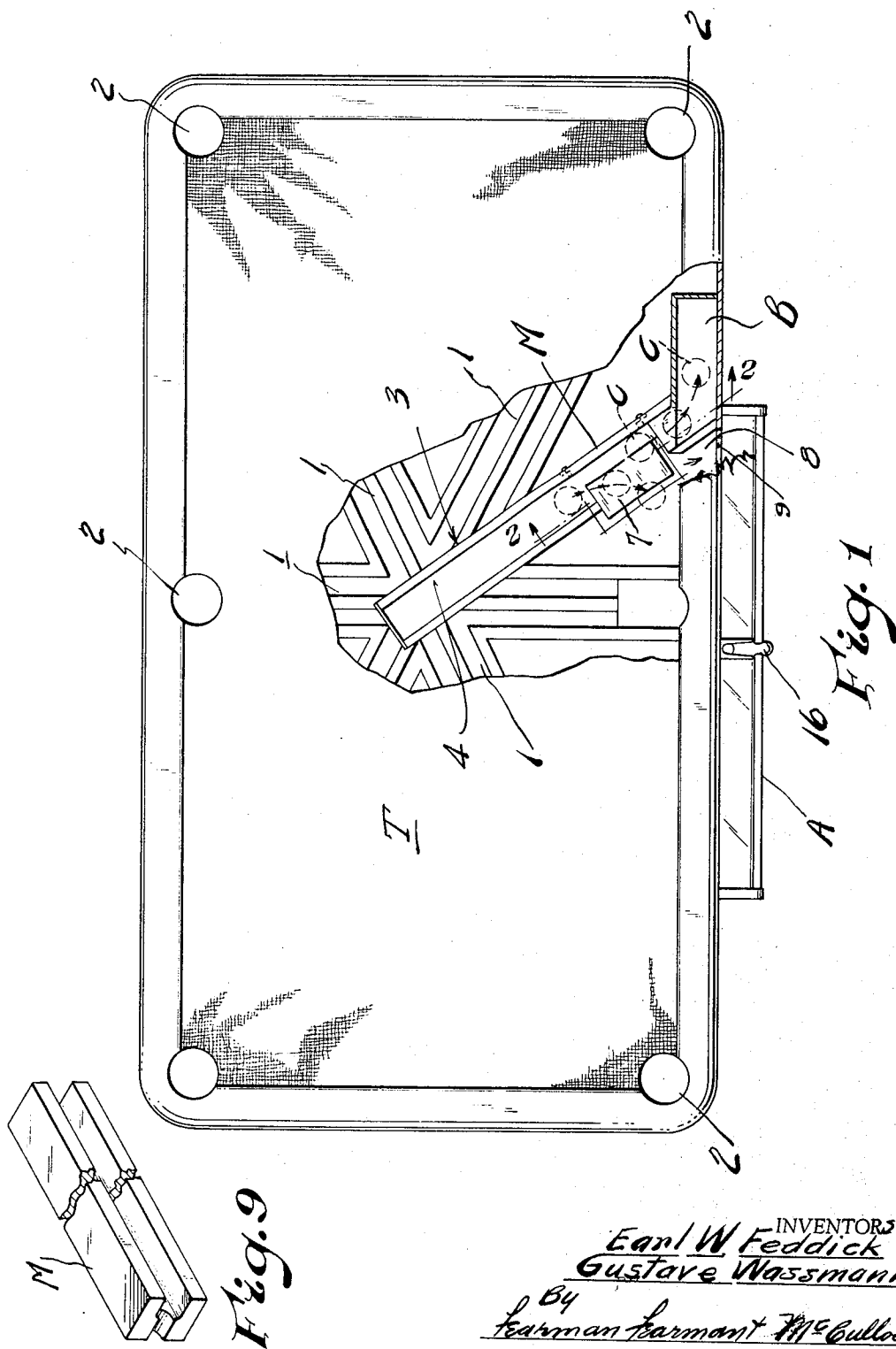
E. W. FEDDICK ET AL

3,362,710

METHODS AND MEANS FOR SORTING POOL BALLS

Filed July 5, 1962

3 Sheets-Sheet 1



Jan. 9, 1968

E. W. FEDDICK ET AL

3,362,710

METHODS AND MEANS FOR SORTING POOL BALLS

Filed July 5, 1962

3 Sheets-Sheet 2

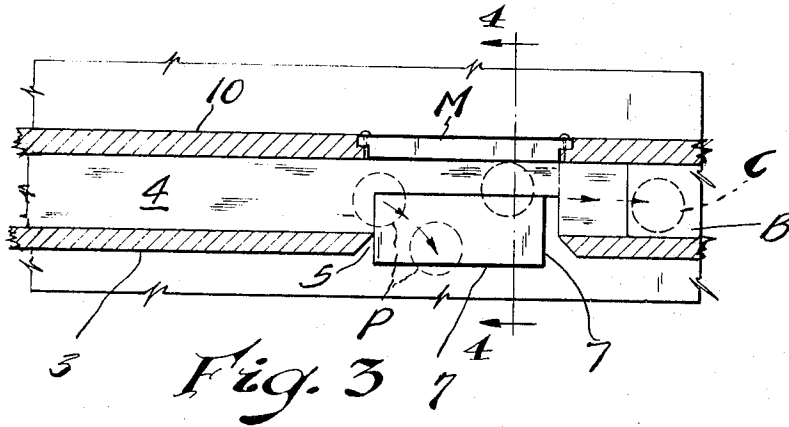
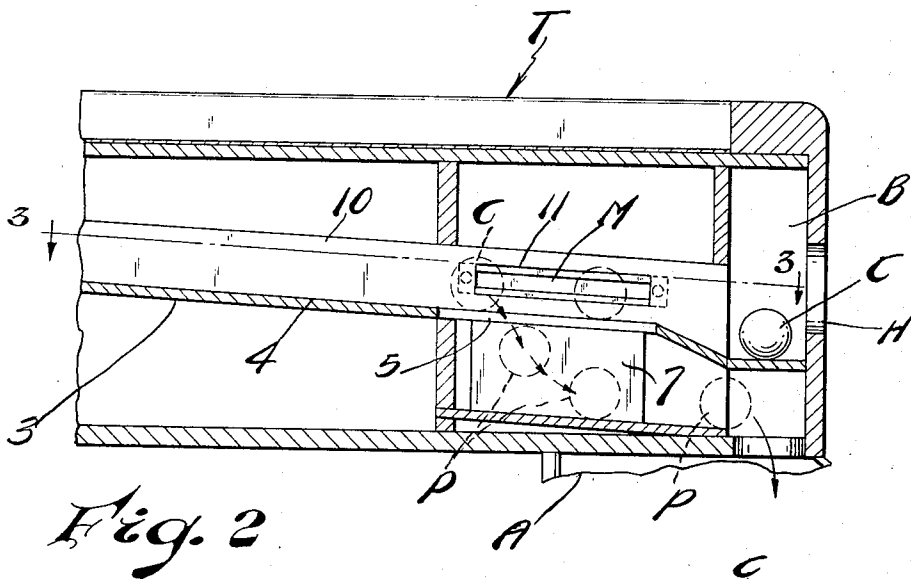
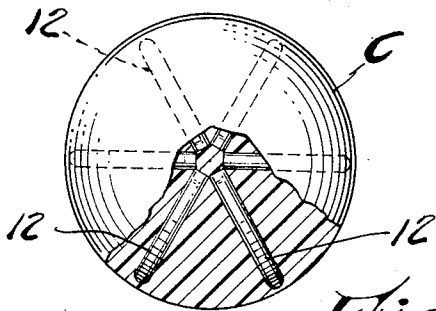
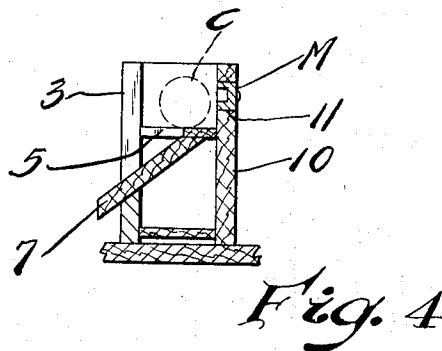


Fig. 5

Fig. 4

INVENTORS
Earl W. Feddick
Gustave Wassmann.

By Harman Harman & McCulloch
ATTORNEYS

Jan. 9, 1968

E. W. FEDDICK ETAL

3,362,710

METHODS AND MEANS FOR SORTING POOL BALLS

Filed July 5, 1962

3 Sheets-Sheet 3

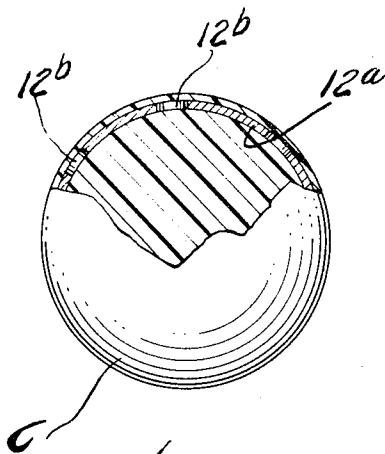


Fig. 6

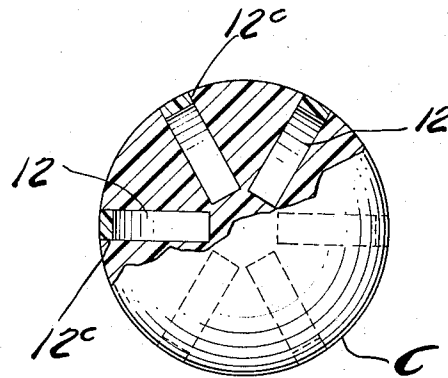


Fig. 7

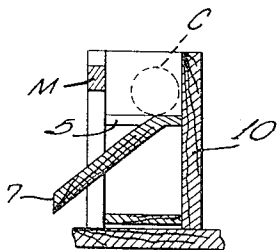


Fig. 10

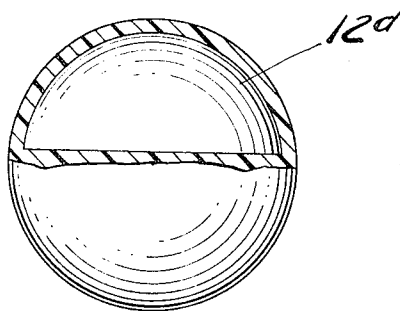


Fig. 8

INVENTORS

Earl W. Feddick.
Gustave Wassmann.

BY

Leaman Leaman McCulloch
ATTORNEYS

1

2

3,362,710 METHODS AND MEANS FOR SORTING POOL BALLS

Earl W. Feddick and Gustave Wassmann, Bay City,
Mich., assignors to Valley Manufacturing Company,
Bay City, Mich., a corporation of Michigan
Filed July 5, 1962, Ser. No. 207,694
13 Claims. (Cl. 273—11)

ABSTRACT OF THE DISCLOSURE

A pool game having a table provided with pockets communicating with a locked object ball compartment and an accessible cue ball compartment via a distributor and in which the distributor has an opening through which all balls are capable of passing into the locked compartment. All the balls are of the same size and the cue ball includes magnetic material therein which reacts with a magnet located adjacent the distributor opening to prevent passage of the cue ball to the locked compartment, thereby enabling the cue ball to pass to the accessible compartment.

This invention relates to pool balls and tables, particularly tables equipped with a normally locked, coin actuated pool ball compartment into which the balls roll, by gravity, when played, and to methods and means for effecting magnetic separation of the unnumbered cue ball from the numbered object balls in the event the cue ball inadvertently is shot or rolls into one of the pockets during the progress of the game.

Most coin operated pool tables have distributor troughs leading from the individual pockets of the table to a normally locked object ball compartment which can be opened only upon the depositing of a coin of the proper denomination. It frequently happens that the cue ball is shot or rolls into one of the pockets of the table and thus would be subjected to the same treatment as the other balls if provision were not made to prevent the cue ball from being delivered to the object ball compartment. This problem has been solved heretofore by so forming the cue ball that it has a slightly larger diameter than the object balls, i.e., there is a size differential between the cue ball and the object balls, so that when the cue ball is inadvertently shot or rolls into one of the table pockets it is incapable of entering the locked object ball compartment. Instead, the oversize ball bypasses the object ball compartment and is delivered to a cue ball compartment, thereby making it unnecessary to insert a coin in the mechanism to retrieve the cue ball prior to completion of the game.

Although an oversize cue ball permits its separation from the other balls, there are many objections to utilizing a cue ball that is larger than the remaining balls. One of the salient objects of the invention, therefore, is to provide means and methods applicable to coin operable pool games for enabling the cue ball to be made the same size as the object balls and still enable the cue ball to be separated automatically from the object balls.

Another object of the invention is to provide a cue ball having magnetic material forming a part of the ball.

Another object of the invention is to provide magnetic means capable of reacting with such a cue ball to attract the latter and separate the cue ball from other, non-magnetic balls.

A further object of the invention is to provide a pool table having automatic ball delivery means for the object balls and magnetic means to prevent a magnetically attractable cue ball from following the path of the object balls.

A further object of the invention is to provide a pool table of the kind referred to having a separate, readily accessible compartment to which such a cue ball is delivered from any of the pockets of the table.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts, hereinafter more fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims, it being understood that changes may be made in the form, size, proportion and minor details of construction, without departing from the spirit, or sacrificing any of the advantages, of the invention.

In the drawings:

FIGURE 1 is a top plan view of a pool table constructed according to the invention with the playing surface of the table broken away to show the ball chutes and distributing trough, the broken lines showing a cue ball and object balls;

FIGURE 2 is an enlarged, fragmentary, longitudinal sectional view through the distributor trough and cue ball compartment taken on the line 2—2 of FIGURE 1;

FIGURE 3 is a sectional plan view taken on line 3—3 of FIGURE 2;

FIGURE 4 is a transverse, sectional view through the distributor, taken on the line 4—4 of FIGURE 3;

FIGURE 5 is an enlarged, elevational view of a cue ball formed according to one embodiment of the invention, with a part broken away to show the construction;

FIGURES 6—8 are views similar to FIGURE 5, but illustrating other embodiments;

FIGURE 9 is an enlarged, fragmentary perspective view of the magnet; and

FIGURE 10 is a view similar to FIGURE 4 but illustrating a modification.

Apparatus constructed according to the invention is adapted for use with a substantially conventional pool table T having underslung ball chutes 1 communicating with each pocket 2, each chute 1 terminating at a lower level, downwardly inclined trough 3 leading to a normally locked object ball compartment A into which object balls P may roll by gravity. The trough 3 also leads to a cue ball compartment B into which the cue ball C may roll when the game is completed, or when it is inadvertently shot into a pocket during the progress of the game. The cue ball compartment is provided with an access opening H to permit the ball to be removed from the compartment B when desired.

The cue and object balls preferably are formed of phenolic resins of the type disclosed in Patents Nos. 2,223,394 and 2,395,675, but any other suitable and conventional material having the desired characteristics, as hereinafter set forth, may be utilized.

As is best shown in FIGURES 2, 3 and 4, the trough 3 has a bottom wall or floor 4 having a width somewhat greater than the diameter of the balls. In advance of the cue ball compartment B, a portion of the floor 4 is removed to form an exit opening 5 beneath which is mounted a deflector plate 7 that is adapted to deflect a falling ball into a chamber 8 that communicates with the compartment A through an opening 9. Adjacent the opening 5 the floor 4 has a width such that any ball arriving at the opening will be diverted through the latter by gravity unless it is acted upon by an external force.

The cue ball C is formed to the same diameter as the object balls and follows the same path to the exit opening 5 whenever it is inadvertently shot or rolls into one of the pockets 2 of the table. To eliminate the possibility of the cue ball's rolling through the exit opening 5 and following the path of travel of the object balls, one side wall 10 of the distributor trough is slotted as at 11 for

3

substantially the full length of the opening 5 to accommodate an elongated magnet M of known construction, for a purpose presently to be described.

The magnet M is adapted to attract and guide the cue ball past the exit opening 5, so that it bypasses the locked compartment A and continues to roll down the trough 4 into the cue ball compartment. For this purpose, the cue ball is equipped with internal, magnetically attractable material so that it will be attracted by the magnet M as it rolls past the exit opening.

The cue ball can be formed in various ways, and, when completed, preferably is of the same weight and diameter as the object balls P. Moreover, the magnetically attractable material must be so distributed as to cause the ball to roll true when played.

In one embodiment, the resin forming the ball C is molded about a plurality of uniformly spaced apart, stainless steel strips 12 in the form of circular or semi-circular loops. The molding process can be any one of a number of conventional embedding processes as long as each strip or loop is embedded in the body of the ball so that they all are completely covered by the resin material of which the ball is formed and as long as the strips are evenly spaced so that the center of mass of the ball is at the geometric center of the ball. Alternatively (FIGURE 6), a hollow sphere 12a of metal may be embedded in the ball by a molding process, and the sphere can be perforated as at 12b, to allow the plastic resin to flow into the sphere to form a core within the sphere. An alternative method (FIGURE 7) is to mold a ball with peripheral grooves 12c in its outer surface, the depth of the grooves being greater than the thickness of the strips 12. Thereafter the strips 12 may be inserted in the grooves and the grooves filled to the outer surface of the ball with the resin which subsequently may be cured to form a smooth exterior. A still further method (FIGURE 8) it to substitute for the loops 12, segment shaped pieces of metal 12d similar to orange sections and either mold the ball around such sections, or insert them in a ball having grooves therein to accommodate them, and subsequently fill the grooves with resin and cure the latter to form a smooth surface.

In all of the foregoing embodiments, it is desirable that the metal in the ball extend as close as possible to the surface of the ball to assure adequate attraction of the ball by the magnet M. Accordingly, it is necessary that the resin used in forming the ball be capable of adhering to the metal and remaining adhered thereto. Moreover, the resin should be sufficiently tough to avoid cracking in the regions adjacent the metal.

If desired, the exposed face of the magnet M can be concave in cross section to provide for a greater area of contact with the ball. The strength of the attraction between the cue ball and the magnet should be sufficient to maintain the ball against the side wall 10 of the trough, but it should not be of such magnitude as to prevent the ball from rolling past the exit opening 5, thus assuring its reaching the cue ball compartment B.

In any of the described embodiments, the metal embedded in cue ball C can be magnetized. In such an arrangement, the magnet M can be replaced by a strip of magnetically attractable material such as steel.

If it should be desired to repel, rather than attract, the cue ball, the metal in the ball can be so arranged that its magnetic polarity is the same as the polarity of the magnet M. This construction would require mounting the magnet M on the trough wall that is opposite the wall 10, as is shown in FIGURE 10.

In practice, the player first inserts a coin (not shown) in a coin slide lever 16 (FIGURE 1) and pushes the lever inwardly to actuate mechanism (not shown) to unlock the ball compartment A. The complement of object balls and the cue ball then may be assembled on the playing surface of the table and a game begun. Any object ball P that rolls into a pocket 2 will be delivered to

4

the locked compartment A, from which it cannot be retrieved until another coin is deposited. Should the cue ball C be shot into a pocket, however, it will be forcibly attracted by the magnet M so as to prevent its being diverted to the locked compartment A. Instead, the cue ball will bypass the exit opening 5 and will be delivered to the compartment B where it may be retrieved and put in play.

The disclosed apparatus and methods constitute presently preferred embodiments of the invention, but are intended to be illustrative rather than definitive thereof. The invention is defined in the claims.

What we claim is:

1. Pool game apparatus including pool balls of substantially uniform size, and a pool table having at least one pocket in which said balls may be received, a first ball storage compartment adapted to receive all of said balls, a second ball storage compartment, and delivery means communicating with said pocket for delivering balls along paths leading from said pocket to each of said compartments; first magnetic means in at least one but less than all of said balls; and second magnetic means supported by said delivery means for reaction with the magnetic means in said one of said balls for diverting said one of said balls from the path leading to said first compartment to the path leading to said second compartment.

2. The construction set forth in claim 1 wherein said second magnetic means comprises a magnet and wherein said first magnetic means comprises magnetically attractable metal.

3. The construction set forth in claim 2 wherein said first magnetic means comprises loops of magnetically attractable material.

4. The construction set forth in claim 2 wherein said first magnetic means comprises a hollow sphere of magnetically attractable material.

5. The construction set forth in claim 2 wherein said first magnetic means comprises generally segment-shaped pieces of magnetically attractable metal.

6. Pool game apparatus comprising a plurality of pool balls of substantially uniform size and a pool table having at least one pocket in which pool balls may be received, a first ball storage compartment, a second ball storage compartment, ball delivery means extending from said pocket to and beyond said first compartment to said second compartment, exit means in said delivery means and operable to divert balls to said first compartment, first magnetic means in at least one but less than all of said balls, and second magnetic means supported by said delivery means adjacent said exit means, said first and second magnetic means being cooperable to prevent diversion of said one ball to said first compartment and to maintain said one ball on said delivery means for delivery to said second compartment.

7. The construction set forth in claim 6 wherein said second magnetic means comprises a magnet and wherein said first magnetic means comprises magnetically attractable material embedded in said one ball adjacent its outer surface.

8. A method of separating a magnetically attractable ball from other, non-magnetically attractable balls, all of said balls being of uniform size, said method comprising rolling said balls along a common, generally linear, inclined path to a separating zone; diverting said other balls from said path at said zone; delivering said diverted other balls to a normally inaccessible receptacle; exerting on said magnetically attractable ball at said zone a magnetic force of sufficient magnitude and so directed as to prevent the diversion of said magnetically attractable ball from said path, but without preventing it from continuing to roll; and delivering said magnetically attractable ball to an accessible receptacle.

9. The method set forth in claim 8 wherein said magnetic force is attractive.

10. The method set forth in claim 8 wherein said magnetic force is repulsive.

5

11. A method of separating a magnetically attractable ball from other, non-magnetically attractable balls, all of said balls being of uniform size, said method comprising rolling said balls along a common, generally linear, inclined path to a separating zone; diverting said other balls by gravity laterally from said path at said zone; delivering said diverted other balls to a normally inaccessible receptacle; exerting on said magnetically attractable ball at said zone a magnetic force of sufficient magnitude and so directed as to prevent the diversion of said magnetically attractable ball from said path, but without preventing it from continuing to roll; and delivering said magnetically attractable ball to an accessible receptacle.

12. In a game apparatus of the character described, a pool table having a play table portion, a complement of pool balls including object balls and a cue ball, pockets into which to receive balls rolling thereinto off said table portion, a ball receiving runway, runways for directing balls received in the pockets into said ball receiving runway, a cue ball receiving compartment, an object ball receiving compartment, said ball receiving runway including a portion leading to the object ball receiving compartment and a portion leading to the cue ball receiving compartment, certain of said balls being magnetically attractable, and there being included magnetic means disposed to divert each magnetically attractable ball from the ball receiving runway into a particular one of said runway portions.

13. In a game apparatus of the character described, a pool table having a play table portion, a complement of identically sized pool balls including object balls and a cue ball, pockets into which to receive balls rolling thereinto off said table portion, a ball receiving runway, runways for directing balls received in the pockets into said ball receiving runway, a cue ball receiving compartment,

6

an object ball receiving compartment, means for directing all object balls received in said receiving runway into said object ball receiving compartment, means for directing the cue ball whenever received in said ball receiving runway therefrom into said cue ball receiving compartment, the cue ball being magnetically attractable, and the means for directing the cue ball into the cue ball receiving compartment including magnet means.

References Cited

UNITED STATES PATENTS

449,253	6/1893	Sanders et al.	209—223
695,080	3/1902	Ramspeck.	
724,470	4/1903	Haskell	273—59
1,108,441	8/1914	Hubbell	273—59
1,938,265	12/1933	Thomas	273—11
2,277,057	3/1942	Bach	273—58
2,348,267	5/1944	Sikes	273—11
2,353,866	7/1944	Bach.	
2,665,912	1/1954	Juran	273—118
2,939,709	6/1960	Verveer	273—118
3,046,013	7/1962	Kutik	273—59
3,057,477	10/1962	Rappaport	209—223
3,214,171	10/1965	Luchsinger	273—2 X

FOREIGN PATENTS

50,086	3/1935	Denmark.
179,444	5/1922	Great Britain.
580,925	9/1946	Great Britain.

DELBERT B. LOWE, *Primary Examiner.*

RICHARD C. PINKHAM, *Examiner.*

G. L. PRICE, *Assistant Examiner.*