June 29, 1971 A. D. GOETTL 3,588,924

SWIMMING POOL CONSTRUCTION

Filed Feb. 24, 1970 2 Sheets-Sheet 1

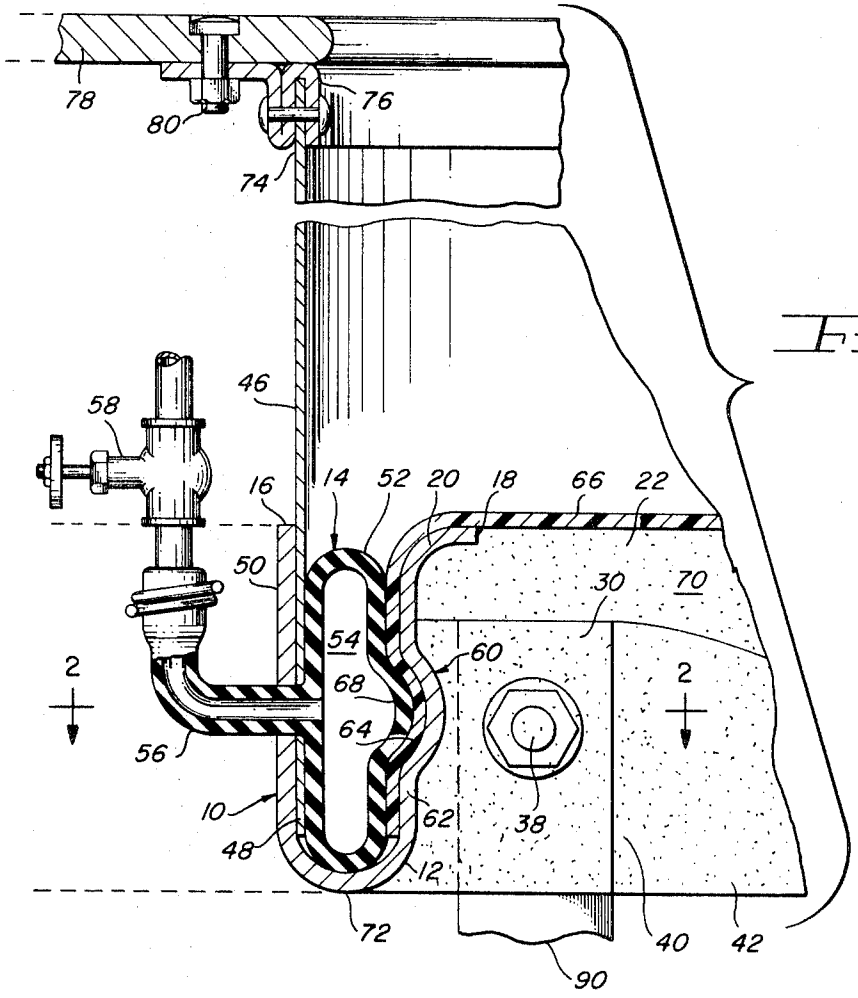


Fig. 1

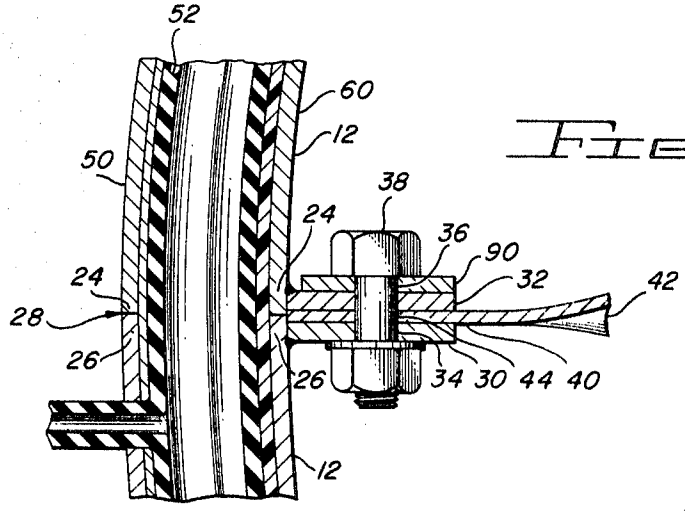


Fig. 2

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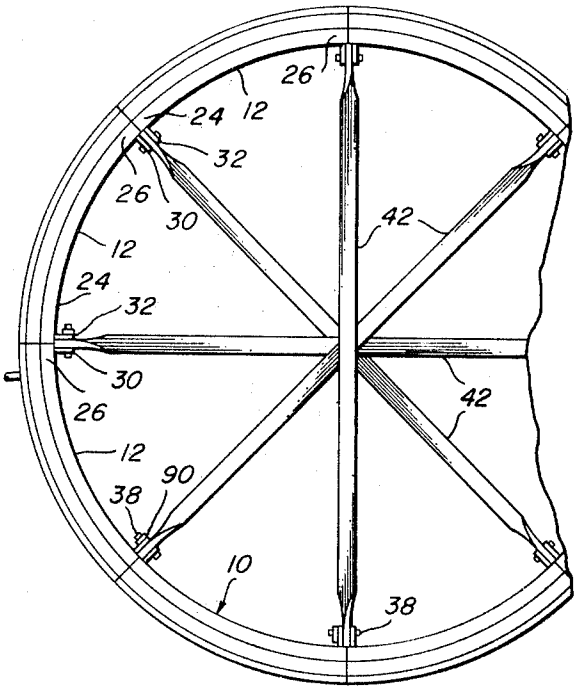


Fig. 3

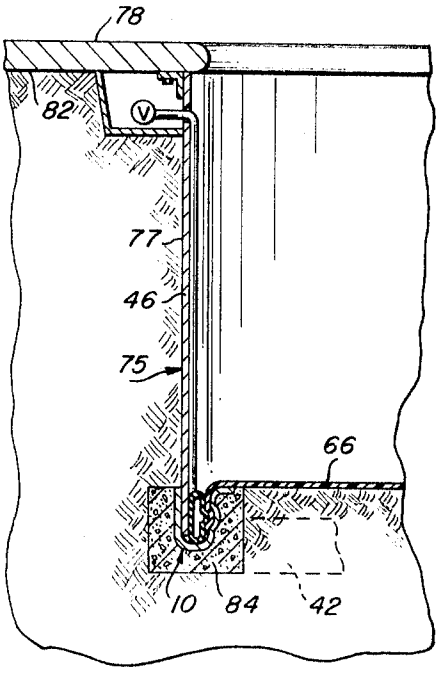


Fig. 4

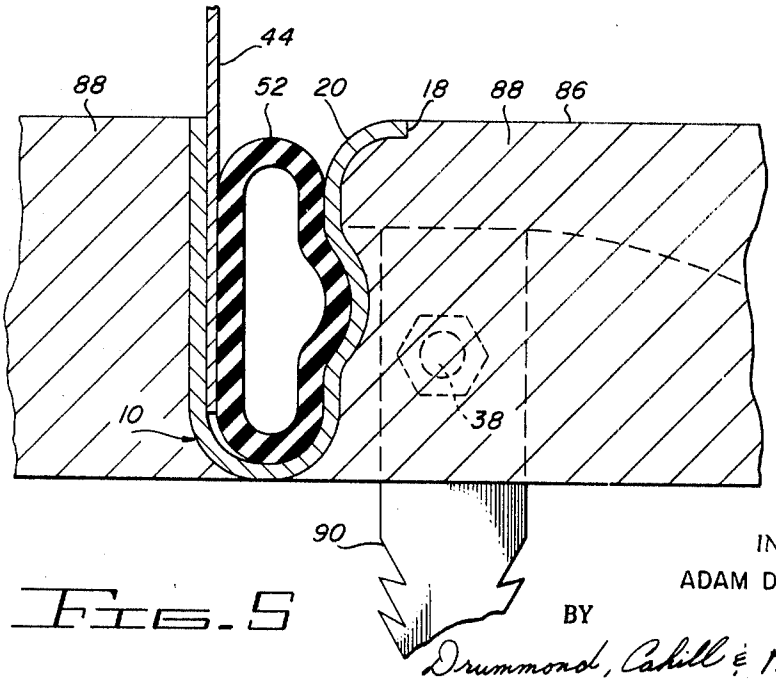


Fig. 5

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SWIMMING POOL CONSTRUCTION

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U.S. Cl. 4—172.19 11 Claims

ABSTRACT OF THE DISCLOSURE

A swimming pool construction adapted for above-ground or recessed installation wherein an endless base channel assembly is provided with tension braces extending thereacross and wherein an inflatable seal is disposed between one side of the channel assembly and an upstanding water retaining wall to surround and retain water in a swimming pool area.

The prior art swimming pool structures which employ metal side walls have been used in many instances above ground and have required expensive and complex wall and floor structures with a complete plastic liner over the floor area and extending upwardly adjacent to the metal side walls. Many of these structures require a very substantial investment due to their overall cost of materials and due to the labor required to assemble them. Other similar swimming pool structures require the casting of a substantial concrete base preliminary to the support and assembly of such swimming pool structures. Additionally, many of the prior art above-ground swimming pool structures require considerable time for the assembly thereof and may not be readily disassembled and stored in a compact manner.

In accordance with the present invention, a swimming pool construction includes a base channel assembly composed of a plurality of upwardly open channel sections arranged in end-to-end abutted relationship to each other to form a generally ring shaped or other shaped base channel assembly disposed to surround a swimming pool area. The base channel assembly is provided with a U-shaped upwardly open cross section disposed so as to receive a lower portion of a swimming pool area surrounding wall and an inflatable seal is disposed in the U-shaped channel portion of the assembly for sealing the wall to the channel assembly. Sections of the base channel assembly are provided with fixtures holding them together in end-to-end abutted relationship and coupled to these fixtures are tension braces which extend across the lower swimming pool area and into connection with opposite sides of the channel assembly for resisting the spreading force normally imposed against a swimming pool wall by water contained in the swimming pool area. The foregoing tension braces are secured to the same fixtures which hold the channel sections of the assembly in end-to-end abutted relationship.

The invention also comprises a novel combination of the foregoing channel assembly and inflatable seal and a plastic floor sheet. The plastic floor sheet has a peripheral portion which extends downwardly into the channel structure of said channel assembly and is sealingly clamped between one wall thereof and said inflatable seal in such a manner as to seal the floor area of the swimming pool between opposite sides of said channel assembly. The inflatable seal is located between the wall structure of the pool and the peripheral portion of said plastic floor sheet in order efficiently to seal the floor sheet relative to the swimming pool wall structure surrounding the swimming pool area. The invention also comprises deck structure secured to an upper portion of the swimming pool area surrounding wall structure of the invention and this deck

portion extends outwardly from the swimming pool area for supporting people at a level above the swimming pool area or water retained by the wall structure and the floor sheet of the invention.

The channel assembly of the invention is adapted to be placed on the ground or any other suitable surface and extends thereabove with the channel structure open upwardly. The plastic floor sheet extends over an upwardly and inwardly curved lip of the channel structure and the swimming pool area below the floor sheet and inwardly relative to opposite sides of the channel structure, may be filled with sand or other material to support the flexible floor sheet.

The foregoing channel assembly may, however, be cast in concrete, plastic or any other suitable material to form a contiguous and sealed relationship of the floor area with the channel structure in which case the flexible plastic sheet is not needed. Furthermore, the invention includes the use of the foregoing structure in a recessed position and within an excavation wherein earthen walls surround the wall structure of the swimming pool construction of the invention. In this recessed installation, the channel assembly is cast into a generally ring shaped concrete structure located in the bottom of the excavation and the hereinbefore described inflatable seal and plastic floor sheet are used to seal the bottom of the excavation over the pool area surrounded by the endless channel assembly of the invention.

Accordingly, it is an object of the present invention to provide a swimming pool construction which may be installed above ground or recessed in an excavation in the ground and which is very simple and easy to assemble and install in position to be used to contain water in a swimming pool area.

Another object of the invention is to provide a novel combination of an endless channel assembly having tension braces coupled thereto from side-to-side and novel fixture means coupling end-to-end abutted sections of the channel assembly and also to couple opposite ends of the tension braces thereto; said tension braces extending across the lower portion of the swimming pool area and into connection with the channel assembly to resist forces imposed by water tending to force the wall structure of the swimming pool outwardly as it is held at its lower portion by the channel assembly of the invention.

Another object of the invention is to provide a very simple swimming pool construction which is easily installed or disassembled and which is very economical of structure as well as labor-saving in such installation or disassembly.

Another object of the invention is to provide a swimming pool construction which may be used above ground or recessed in an excavation therein.

Further objects and advantages of the invention may be apparent from the following specification, appended claims and accompanying drawing.

FIG. 1 is a fragmentary vertical sectional view of a side wall and base structure of a swimming pool construction in accordance with the present invention;

FIG. 2 is a fragmentary plan sectional view taken from the line 2—2 of FIG. 1;

FIG. 3 is a reduced fragmentary plan view of a base channel assembly and tension brace structure of the swimming pool construction of the present invention;

FIG. 4 is a sectional view, showing on reduced scale, the structure of the invention disposed in an exacavation in the earth and illustrating the invention in substantially the same manner as that shown in FIG. 1 of the drawing; and

FIG. 5 is a sectional view of the base channel assembly of the invention shown cast in a base structure.

As shown in FIG. 1 of the drawing, the swimming pool construction of the invention comprises a base channel assembly **10** which is composed of a plurality of sections as shown in FIGS. 2 and 3 of the drawing, these sections being designated **12** and being substantially identical in construction. As shown in FIG. 3, these sections **12** form a generally circular channel asssembly; however, other outline shapes may be formed as desired.

Each section **12** as shown in FIG. 1, is provided with a substantially U shaped in cross-section portion having an upper open portion **14** defined by upwardly extending edge portions **16** and **18**, the edge portion **18** being at a terminus of an inwardly curved lip portion **20** which extends inwardly and substantially horizontally toward an area **22** which is surrounded by the channel assembly **10**.

Each section **12** of the assembly **10** is provided with opposite ends **24** and **26** and adjacent ends **24** and **26** of respective channel sections **12** are abutted as indicated at **28** in FIG. 2 of the drawing. Each channel section **12** is provided with an inwardly extending bracket or clip **30** welded or otherwise secured adjacent to the respective channel section at its end **26** and another bracket or clip **32** is welded or otherwise secured to the respectively channel section at its end **24**. These clips **30** and **32** are provided with respective openings **34** and **36** through which a bolt **38** extends to clamp these clip portions **30** and **32** together. The bolt **38** as well as the portions **30** and **32** may be termed fixture means for holding opposite ends or adjacent ends of the channel sections in abutted end-to-end relationship with each other.

Disposed between the clips **30** and **32** is a twisted end portion **40** of a tension brace **42** all as shown best in FIG. 2 of the drawing. This tension brace **42** is provided with an opening **44** therethrough and the bolt **38** extends through this opening as shown in FIG. 2 to sufficiently tie the end **40** of the tension brace **42** in connetion with the clips **30** and **32** fixed to the respective channel sections **12**. The tension braces **42** as shown in FIG. 3 of the drawing, at their opposite ends **40**, are secured to the channel assembly at opposite sides thereof in a manner similar to that as shown in FIG. 2 of the drawing. Thus, stress of water in the swimming pool as will be hereinafter described, may be resisted by the tension braces **42**.

Disposed and extending downwardly into the open upper portion **14** of the channel assembly **10**, is a swimming pool wall structure **46**. A lower portion **48** of this wall structure is disposed in the U shaped in cross section channel structure of the channel assembly as shown in FIG. **1**, and is clamped in contiguous relation to a side wall portion **50** of the channel assembly by means of an inflatable seal **52**. This inflatable seal **52** is endless and hollow; it is preferably a flexible material and provided with a hollow interior **54** adapted to receive fluid through an integral conduit portion **56** for inflating the seal as will be hereinafter described.

Communicating with the flexible conduit **56** is a shut-off valve **58** adapted to be shut off when the inflatable seal **52** is properly inflated and expanded within the channel assembly **10** as will be hereinafter described.

The channel assembly within each of the sections **12** is provided with a channel side wall **60** shown in detail in FIG. 1 of the drawing. This side wall **60** is integral with the hereinbefore described lip **20** and a curved ledge **62** of the side wall **60** of the channel structure is adapted to hold a peripheral skirt portion **64** of a plastic sheet **66** when a conforming portion **68** of the inflatable seal **52** is compressively forced against the peripheral portion **64** of the plastic sheet and thereby tends to lock this peripheral portion in the offset ledge **62**. The plastic floor sheet **66** extends over the curved lip **20** and rests upon sand or other granular material designated **70** in FIG. 1 of the drawing. This granular material is filled in between opposite sides of the channel assembly and covers the tension braces **42**. The granular material **70** may be first installed between the opposite sides of the channel assembly and screeded to a level condition whereupon the plastic sheet **66** may then be installed over the lip **20** and extended downwardly into adjacent relationship with the channel wall **60** whereupon the inflatable seal **52** may be inflated between the wall portion **48** and the peripheral portion **64** of the plastic floor sheet **66** thus forming a seal between the floor sheet and the wall structure **46**.

The channel assembly at a lower peripheral portion **72** thereof may rest upon the ground or any other suitable structure as desired.

The wall structure **46** is adapted to surround and retain water within the swimming pool area of the invention and this wall structure **46** may be made of thin sheet metal such as stainless steel or the like; however, it may be made of any other suitable metal as desired.

An upper portion **74** of the wall structure **46** supports a structural clip means **76** to which a human-supporting deck **78** may be secured by means of bolts **80**.

In a modification of the invention, it will be seen that the wall **46** and base channel assembly **10** may be located in an excavation **75** wherein earthen side walls **77** surround the wall structure **46** in contiguous relation therewith. The deck **78** rests on the upper surface **82** of the ground at the upper portion of the excavation **75**.

In a lower portion of the excavation **75**, a generally ring shaped or other shaped surrounding concrete curb structure **84** is cast around the base channel assembly **10** and the plastic floor sheet **66** is installed in a manner similar to that shown in FIG. 1 of the drawing. The tension braces **42** at their juncture with the channel assembly **10** may be cast into the concrete structure **84** if desired.

In a modified construction of the invention as shown in FIG. 5 of the drawing, the base channel assembly **10** may be cast into concrete plastic or other structure so that a floor **86** is provided by the contiguous and integral casting of material **88** completely across the swimming pool area from opposite sides of the channel assembly and into contiguous relationship therewith. This casting material **88** may also surround the channel assembly **10** all shown best in FIG. 5 of the drawing.

In the construction as shown in FIG. 5 of the drawing, the plastic floor sheet **66** is not utilized; however, the wall structure **46** is sealingly engaged by the inflatable seal **52** in a manner similar to that hereinbefore described.

It will be obvious to those skilled in the art that the mechanical assembly of the sections **12** of the base channel assembly **10** together with the tension braces **42** may be simply accomplished on the surface of the ground to form the structure shown in FIG. 3. Subsequently, the wall structure **46** may be inserted into the channel structure at its upper open U shaped portion as shown in FIG. 1 of the drawing, then the plastic floor sheet may be installed with its peripheral portion **64** forced downwardly into the open portion **14** of the U shaped in cross section channel structure of the base channel assembly; then the inflatable seal **52** may be installed and compressively inflated between the wall structure **46** and the peripheral portion **64** of the plastic floor sheet **66** to provide a seal between the wall **46** and the floor sheet **66**.

It will be understood, however, that the granular material **70** is installed as hereinbefore described before the plastic floor sheet **66** is located and sealed by the inflatable seal **52**.

The sections **12** of the base channel assembly are fairly short and when the overall structure of the invention is dissasembled, these pieces may be stored compactly along with the tension braces **42** and the sheet metal wall structure **46** may be rolled up into a neat roll and thus, during off season periods, the swimming pool construction of the present invention may be removed from its site and the area used for other purposes. Accordingly, it will be obvious that the invention may involve a minimum amount of material and labor to provide a very substantial swimming pool construction. The usual stresses imposed upon a vertical swimming pool wall which is installed above the ground, must be resisted by substantial structure and this is afforded by the tension braces **42**

which interconnect opposite sides of the base channel assembly **10** as hereinbefore described. These tension braces **42** are conveniently coupled in their opposite ends to the same fixtures which interconnect adjacent ends of the channel sections **12**. Thus, the invention provides simplicity of assembly which contributes to the minimization of labor used to assemble and disassemble the swimming pool construction of the invention.

In the structures as shown in FIGS. 1 and 2 and in FIG. 5, hold-down stakes **90** are fixed to the channel sections **12** by means of the bolts **38**. These stakes **90** may include any suitable anchor structure adapted to hold such stakes securely in the soil.

I claim:

1. In a swimming pool construction, the combination of: an endless base channel assembly adapted generally to surround a base area of a swimming pool, said channel assembly composed of a plurality of end-to-end abutted sections, said sections having structure being generally U shaped in cross section with inner and outer sides and open upwardly, said inner sides having inwardly directed indentations extending the length of said section; said sections at their ends, having fixtures disposed to hold adjacent ends of said sections in abutted relation to each other; a plurality of tension braces extending across said area and coupled to said sections at opposite sides of said assembly; an upstanding pool wall structure surrounding said area above said base channel assembly; lower edge of said wall structure disposed in said U shaped in cross section structure of said sections; an inflatable seal in said U shaped in cross section structure and adapted compressively to conform to said indentations and form a seal between said inner side of said U shaped in cross section structure and a lower side portion of said wall structure; and floor means sealing a floor portion of said area between opposite sides of said base channel assembly.

2. The invention as defined in claim **1** wherein said floor means comprises a flexible sheet of plastic material having a peripheral portion sealingly clamped in said U shaped in cross section structure by said inflatable seal.

3. In a swimming pool construction, the combination of: an endless base channel assembly adapted generally to surround a base area of a swimming pool, said channel assembly composed of a plurality of end-to-end abutted sections, said sections having structure being generally U shaped in cross section with inner and outer sides and open upwardly, said inner sides having inwardly directed indentations extending the length of said sections; said sections, at their ends, having fixtures disposed to hold adjacent ends of said sections in abutted relation to each other; a plurality of tension braces extending across the said area and having opposite ends coupled to said sections at opposite sides of said assembly; an upstanding pool wall structure surrounding said area above said base channel assembly; a lower edge of said wall structure disposed in said U shaped in cross section structure of said sections; an inflatable seal in said U shaped in cross section structure and adapted compressively to conform to said indentations and form a seal between said inner side of said U shaped in cross section structure and a lower side portion of said wall structure; and floor means sealing a floor portion of said area between said opposite sides of said base channel assembly; said floor means being a flexible sheet of plastic material having a peripheral portion sealingly clamped in said U shaped in cross section structure by said inflatable seal; said inflatable seal disposed between said wall structure and said peripheral portion of said flexible sheet.

4. The invention as defined in claim **1** wherein said floor means comprises material sealingly cast into the floor portion of said area between opposite sides of said base channel assembly and into contiguous relation therewith.

5. The invention as defined in claim **1** wherein granular material is disposed in said area between opposite sides of said channel assembly and a flexible sheet is disposed over and above said granular material; said sheet having a peripheral portion sealingly clamped in said U shaped in cross section structure by said inflatable seal.

6. The invention as defined in claim **1** wherein a deck structure is disposed and supported on an upper portion of said wall structure; and means securing said deck structure to said wall structure.

7. The invention as defined in claim **1** wherein said tension braces at opposite ends thereof are secured to said fixtures; a common bolt extending through each fixture and an end of one of each of said tension braces.

8. The invention as defined in claim **1** wherein said U shaped in cross section structure is provided with an upwardly and inwardly disposed lip extending generally in a horizontal direction toward said area; said floor means being a flexible sheet of plastic material having a peripheral portion sealingly clamped in said U-shaped in cross section structure by said inflatable seal; said lip supporting said sheet adjacent said peripheral portion thereof.

9. The invention as defined in claim **7** wherein said tension braces are flat strap structures having opposite flat sides disposed generally in a horizontal position; said opposite ends of said tension braces being twisted into a generally vertical disposition in connection with said fixtures.

10. The invention as defined in claim **1** wherein an earthen wall of an excavation surrounds said area in the earth; a generally ring-shaped concrete casting is disposed around said channel assembly and disposed in said excavation area; said earthen wall disposed against said wall structure; and a deck at the upper portion of said wall structure at the ground level above said excavation area; said floor means being a flexible sheet of plastic material having a peripheral portion sealingly clamped in said U shaped in cross section structure by said inflatable seal.

11. The invention as defined in claim **1** wherein said sections of said channel assembly being made of sheet metal.

References Cited

UNITED STATES PATENTS

2,490,272	12/1949	Kascle	4—172.19
3,193,847	7/1965	Mashura	4—172.19
3,409,916	11/1968	Billig et al.	4—172.19
3,439,362	4/1969	Goattl	4—172.19
3,447,168	6/1969	Gabrielli et al.	4—172.19
3,458,875	8/1969	Michalke	4—172.19

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