March 24, 1970 I. S. BROADMAN 3,501,783

SWIMMING POOL COVER

Filed Oct. 24, 1967 2 Sheets-Sheet 1

FIG. 1

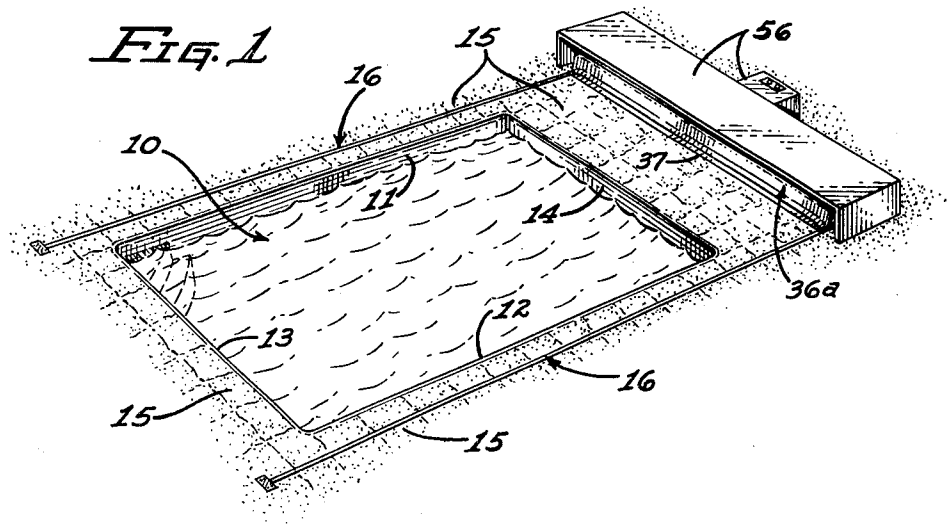


FIG. 3

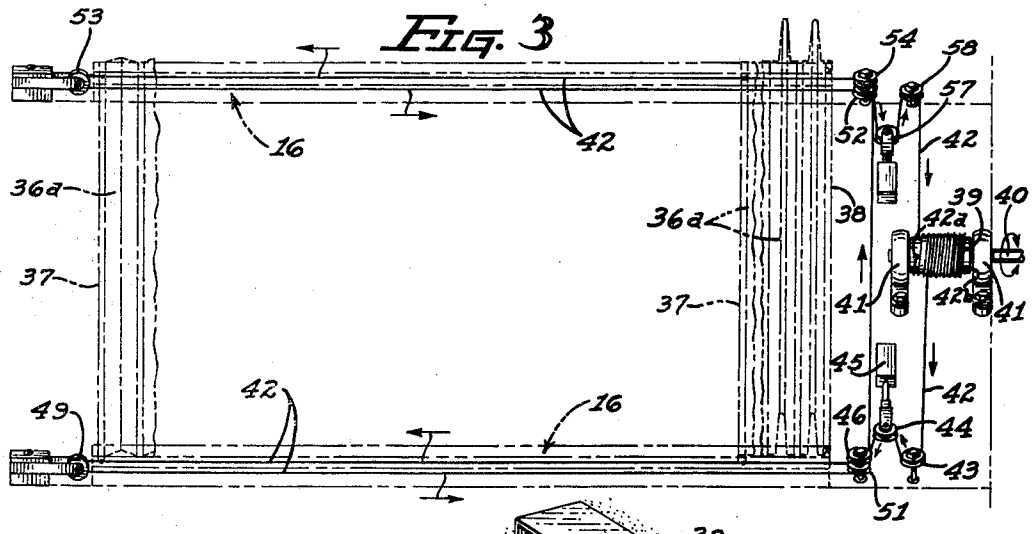
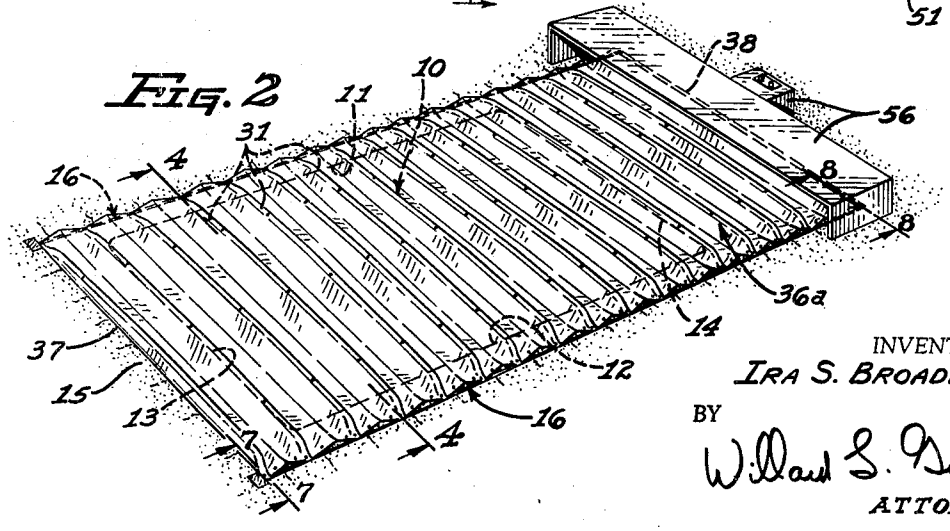


FIG. 2



INVENTOR.
IRA S. BROADMAN.

BY
Willard S. Brown
ATTORNEY.

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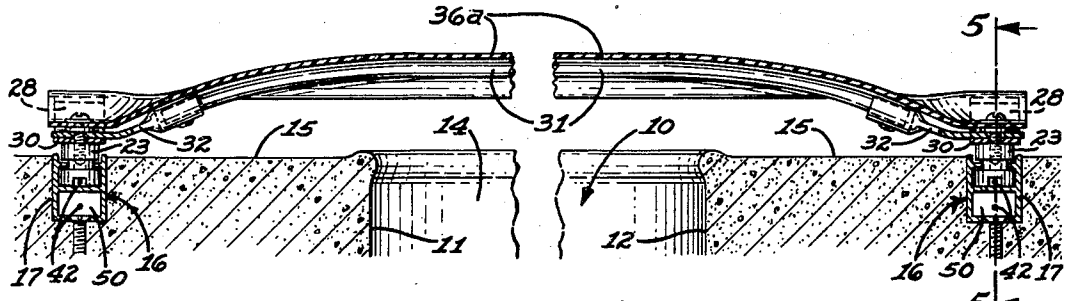


FIG. 4

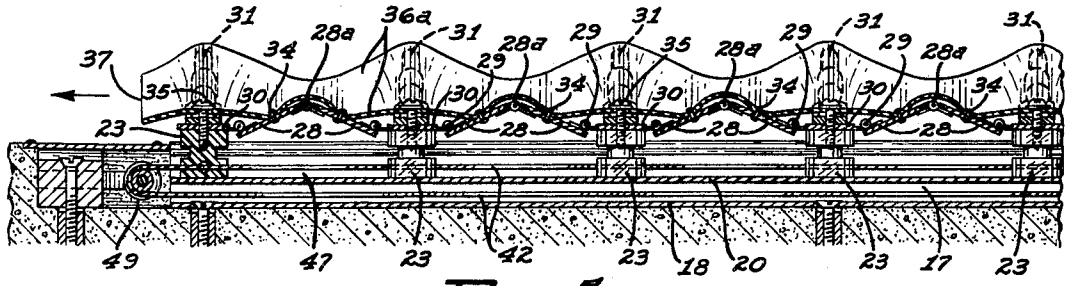


FIG. 5

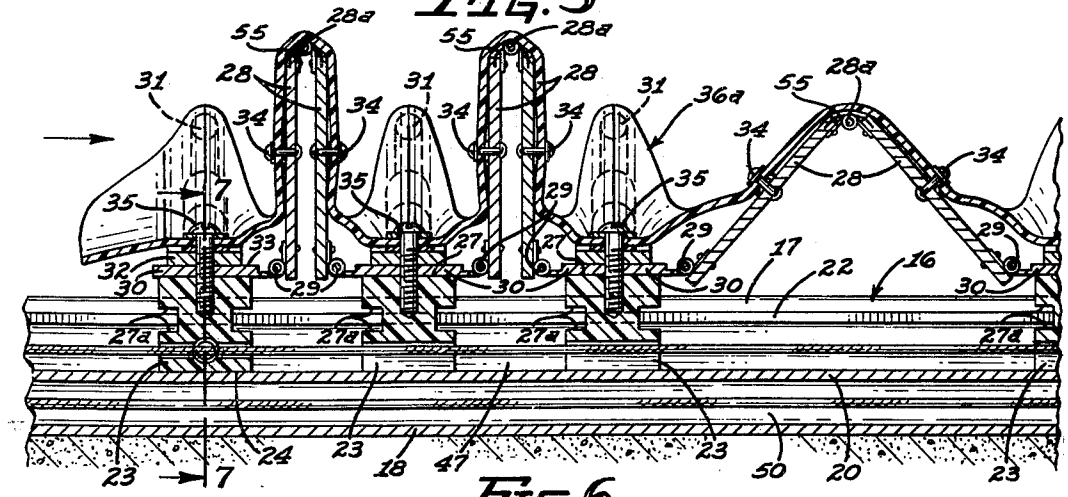


FIG. 6

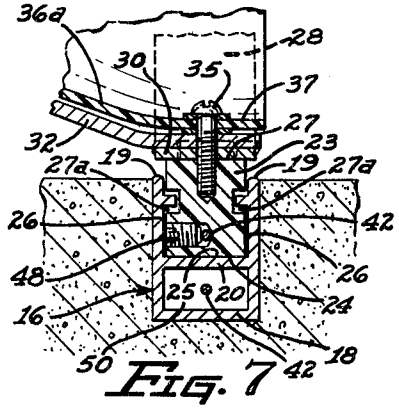


FIG. 7

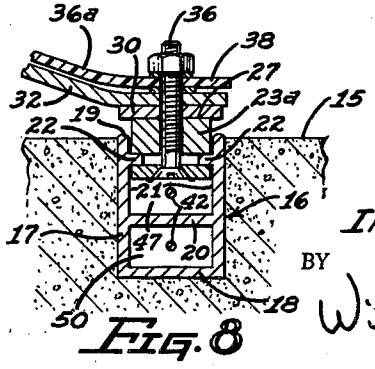


FIG. 8

INVENTOR.
IRA S. BROADMAN.

BY
Willard S. Broad
ATTORNEY.

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3,501,783

SWIMMING POOL COVER

Ira S. Broadman, Phoenix, Ariz., assignor to Capitol Holding Corp., Los Angeles, Calif., a corporation of the District of Columbia

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Int. Cl. E04h 3/19
U.S. Cl. 4—172.14 8 Claims

ABSTRACT OF THE DISCLOSURE

A mechanically operated collapsible folding cover for a swimming pool arranged to slide out over and retract from immediately above the water surface to maintain the pool clean and keep the pool safe from against someone falling in the pool when not in use.

BACKGROUND OF THE INVENTION

(1) The field of this invention lies in a pool cover, and particularly a cover which may be mechanically extended over or retracted from over the surface of the pool.

(2) Heretofore, swimming pool covers were cumbersome and difficult to install and remove from the pool surface and presented a serious problem of storage when the pool was in use. Many of the prior covers rested or floated on the water surface and were not sufficiently rigid and sturdy to safely support a person's weight and prevent accidental drowning.

One of the objects of this invention is to provide a pool cover which may be mechanically applied over and removed from the top of a swimming pool and which stows itself out of the way when the pool is in use.

Still another object is to provide an accordion folding cover for a pool which provides a rigid support cover over the pool surface sufficient to support a person from falling into the pool and becoming injured.

And a further object is to provide a durable and weather-resistant cover for a pool which can be quickly moved to extended closure and retracted positions with manual or power actuation so as to render the cover highly efficient and usable on short notice to immediately move the cover to closed position against sudden storms or to render the pool usable quickly while normally keeping the pool covered.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a pool cover incorporating the features of this invention, showing the cover in retracted position for normal use of the swimming pool.

FIG. 2 is a view similar to FIG. 1 showing the cover in extended closure position over the pool.

FIG. 3 is a schematic plan view particularly showing the actuating mechanism for operating the pool cover.

FIG. 4 is an enlarged sectional view on the line 4—4 of FIG. 2.

FIG. 5 is an enlarged fragmentary sectional view on the line 5—5 of FIG. 4.

FIG. 6 is an enlarged fragmentary sectional view similar to FIG. 5, but showing the cover in partly retracted position.

FIG. 7 is an enlarged fragmentary view on the line 7—7 of FIGS. 6 and 2.

FIG. 8 is an enlarged fragmentary view on the line 8—8 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As an example of one embodiment of this invention there is shown a swimming pool **10** having sides **11** and

12, and ends **13** and **14** terminating in the usual surrounding walk **15**. Secured to and imbedded in the walk **15** are guide tracks **16** comprising box-shaped rails **17** having a bottom **18** and upstanding sides **19** interconnected by a horizontal dividing partition **20**. Formed integral with the inwardly facing side surfaces **21** are the horizontally inwardly projecting guide strips **22**.

Sliding guide shoes **23** have bottom surfaces **24** which are supported on and slide on the top surface **25** of the horizontal dividing partitions **20**. The sides **26** of the shoes **23** are slidingly engaged by the surfaces **21** of the tracks while guide strips **22** slidingly engage in slots **27***a* of the shoes **23** to maintain the shoes in operative position in the guide tracks **16**.

Bridging longitudinally of the guide tracks **16** between the top surfaces **27** of the shoes of each guide track **16** are pairs of hinge plates **28** pivotally connected together at their upper outer ends by a suitable hinge pin **28***a* and pivotally connected at their lower ends by suitable hinge pins **29** to shoe plates **30** fixed to the top surfaces **27** of the shoes **23**. Extending laterally across the pool from between the guide tracks **16** are the upwardly bow-shaped ribs **31** whose integral end pieces **32** are fixed to the top surfaces **33** of the shoe plates **30**.

Extending over the top of the ribs **31** is the cover **36***a* which is secured at its side edges to the hinge pieces **28** by suitable rivets **34** and to the shoe plates **30** by suitable screws **35** which also secure the ends **32** of the ribs **31** and the shoe plates **30** to the guide shoes **23**. The guide shoes **23***a*. FIG. 8, are clamped immovably to the inner ends of the guide tracks **16** by suitable bolts **36** while the opposite outer end **37** of the cover is free to move relative to the fixed inner end **38**.

Mechanism is provided to move the free end **37** relative to its fixed end and includes a draw cable system comprising a drum **39** fixed to an operating shaft **40** journaled in suitable pillow blocks **41** fixed to the walk surface **15** and which shaft may be reversibly rotated by a suitable hand crank or drive motor, not shown. An operating cable **42** has each end **42***a* and **42***b* secured to the periphery of the drum so that one end wraps up on the drum while the other unwraps. The cable **42** extends from the drum **39** over an idler pulley **43** over a tensioning pulley **44** of a suitable adjusting and tensioning device **45**. It then passes over an idler pulley **46** and through the longitudinal passageway **47**, FIG. 8, in the guide track **16** on one side of the pool and is rigidly attached by a suitable set screw **48** to the outer movable end guide shoe **23**, then over an idler pulley **49** and back through the lower passageway **50** of the guide rail back to idler pulley **51**. The cable **42** then extends laterally to another idler pulley **52**, through the lower passageway **50** of the other guide track then over the idler pulley **53** and then is clamped to the other outer free end moving guide shoe **23**, then back through upper passageway **47** over idler pulley **54** thence over tension pulley **57**, over idler pulley **58** and back to the drum **39**.

Thus, by rotation of the drum **39** the cover **36***a* may be drawn over or withdrawn from over the pool surface. As the outer free end **37** moves toward the fixed end **38** each pair of hinge elements fold up successively as in FIG. 6 until all are folded up against the fixed end as in FIG. 1. As they are extended, each hinged portion **28** successively unfolds until the cover has been extended over the pool as in FIG. 2. It is important to note that around each hinge pin **28***a* is provided a torsion spring **55** and the hinge plates never swing down to a horizontal position of dead-center alignment of hinge pins **28***a* and **29**, but always stay slightly above as in FIG. 5. A suitable cover case **56** may be provided for the drum **39** and associated mechanism.

While the apparatus herein disclosed and described constitutes a preferred form of the invention, it is also to be understood that the apparatus is capable of mechanical alteration without departing from the spirit of the invention and that such mechanical arrangement and commercial adaptation as fall within the scope of the appendent claims are intended to be included herein.

What is claimed is:

1. An extendable and retractable protective and safety cover structure for swimming pools and the like, comprising:

(a) a cover of flexible foldable material;

(b) a pair of guide tracks respectively extending along opposite sides of said pool;

(c) a plurality of elongate support members for said cover, said members extending between said tracks above said pool and occupying a generally upright cover supporting position;

(d) means movably connecting the respective ends of each of said support members with the adjacent track for movement therealong with the support member maintained in said upright position;

(e) means successively connecting the adjacent ends of the support members along each track enabling movement of the upright supports into closely adjacent relation and spaced apart relation; and

(f) actuating means for selectively applying oppositely directed forces at one end of the cover to move the upright supports into said closely adjacent positions in which the cover is retracted, and to move the upright supports into said spaced apart relation in which the cover is extended.

2. A pool cover according to claim 1, wherein the flexible cover is attached along said supports, and is adapted to hang in a folded loop between the upright supports when in said closely adjacent relation, and to be substantially tensioned therebetween when in said spaced apart relation.

3. A pool cover according to claim 1, wherein the support at one end of the cover is anchored at one side of the pool against movement along said track, and the actuating means are connected with the movable support at the opposite end of the cover.

4. A pool cover according to claim 3, wherein the actuating means comprises a looped cable system having a cable run extending along each of said tracks; means connecting said cable runs respectively to the ends of the movable support at said opposite end of the cover; and means for selectively reversably driving said cable runs in the same direction to actuate the cover to retracted and extended positions.

5. A pool cover according to claim 4, wherein the looped cable is trained over an idler pulley of a tensioning device.

6. A pool cover according to claim 1, wherein the means successively connecting the adjacent ends of support members comprises in each case a pair of hinge members having pivotally connected ends, the other ends of said hinge members having pivot connections respectively with the adjacent ends of said supports, said hinge members being adapted to hinge upwardly at their connected ends to permit movement of the upright supports into said closely adjacent relation, and hinge downwardly to a substantially aligned position along the adjacent rail to permit movement of the supports into said spaced apart relation.

7. A pool cover according to claim 6, wherein spring means operatively associated with each pair of hinge members normally acts to hinge them upwardly.

8. A pool cover according to claim 7, wherein said spring means prevents movement of the hinge members into a dead-center position extending along said track.

References Cited

UNITED STATES PATENTS

2,788,849	4/1957	Lingard	4—172 XR
2,958,083	11/1960	Shook et al.	4—172
2,990,556	7/1961	Bender	4—172
3,019,450	2/1952	Karasiewicz	4—172
3,118,148	1/1964	Taylor et al.	4—172
3,277,498	10/1966	Kleinbard	4—172

LAVERNE D. GEIGER, Primary Examiner

HENRY K. ARTIS, Assistant Examiner