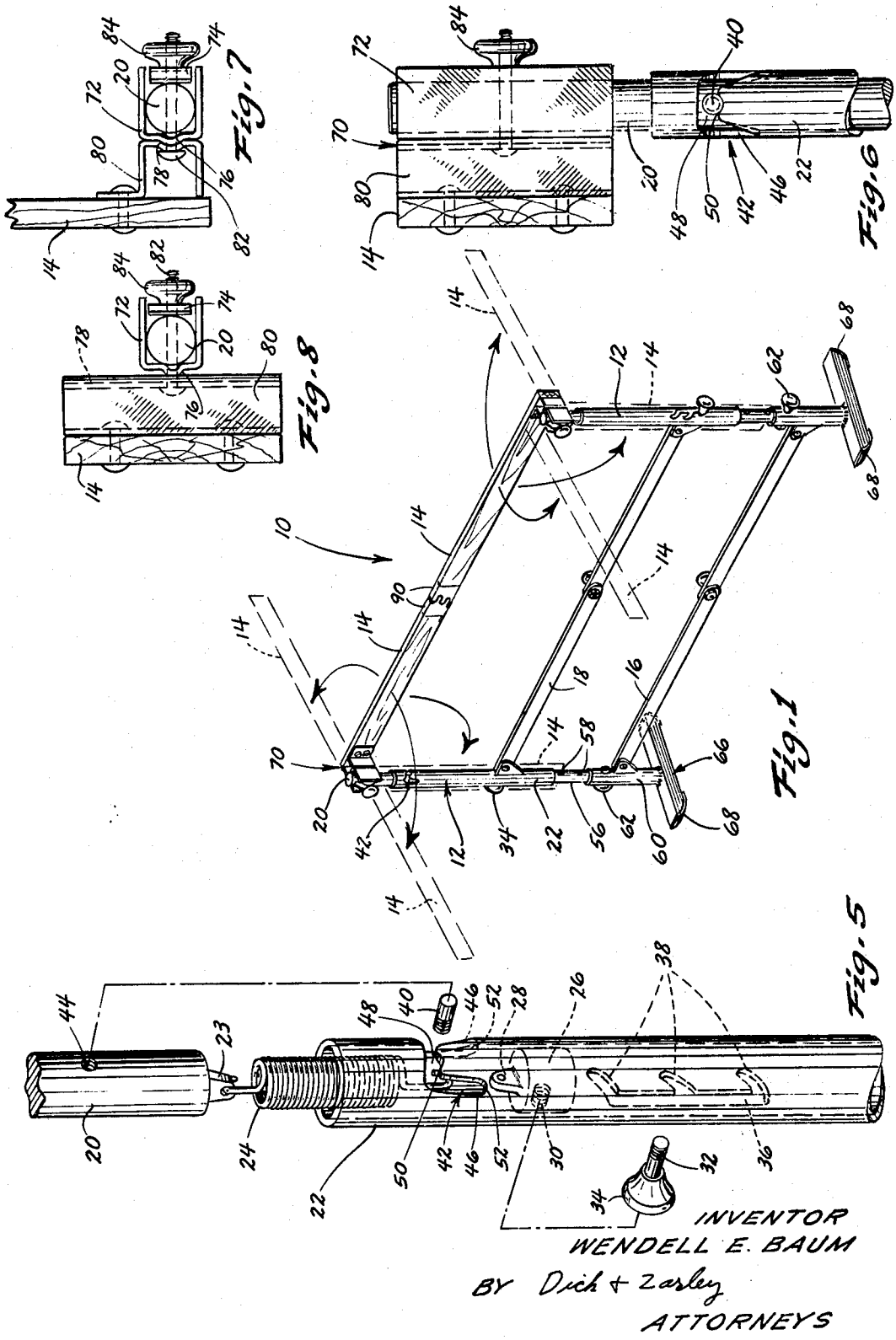
May 21, 1968 W. E. BAUM 3,384,367

HURDLE HAVING A DISPLACEABLE CROSSBAR

Filed Jan. 28, 1965 2 Sheets-Sheet 1



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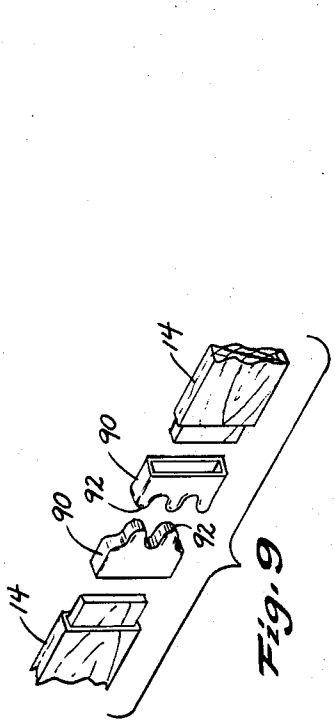


Fig. 9

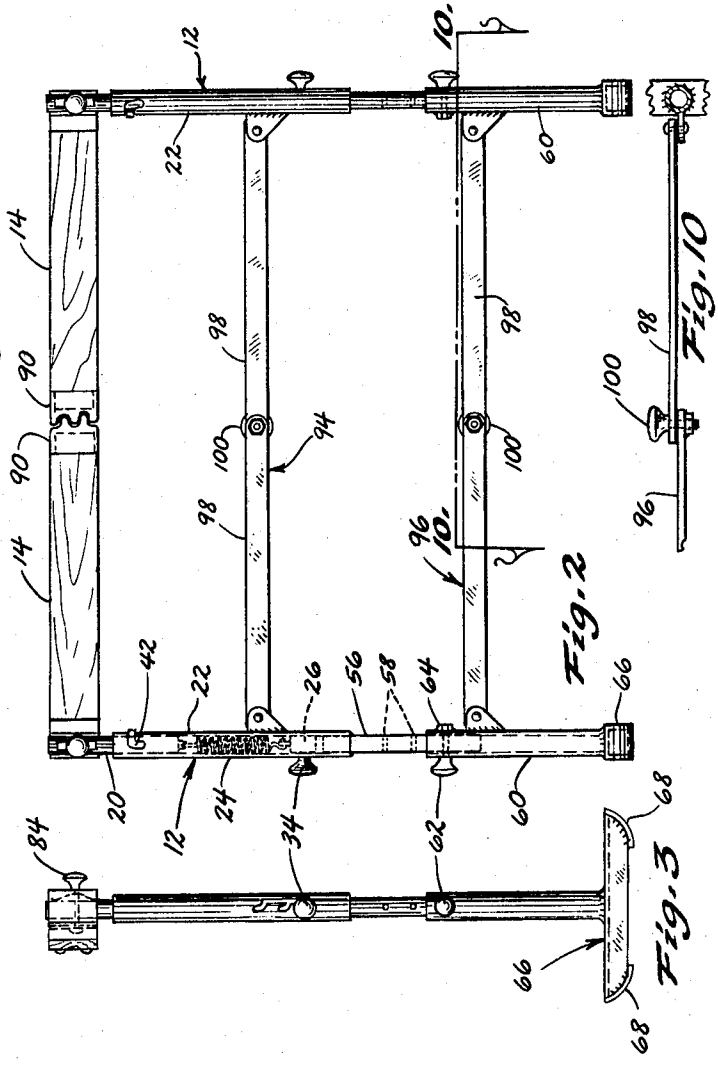


Fig. 2

Fig. 10

Fig. 3

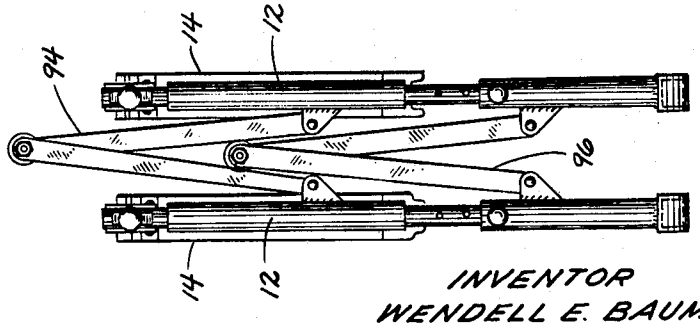


Fig. 4

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HURDLE HAVING A DISPLACEABLE CROSSBAR

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ABSTRACT OF THE DISCLOSURE

A device having a pair of upright standards comprised of telescoping members adapted to rotate relative to each other, a gate member being pivoted to the upward telescopic member and being movable between open and closed position with the free ends of the gate members being closely adjacent each other when in a closed position and spaced apart when in an open position, a spring means interconnecting the telescoping members and cooperating cam means on each of the telescoping members to yieldingly lock the members in either open or closed positions upon said gate members being moved a predetermined distance, and a second cam means on each standard for yieldably locking said gate members in vertically disposed open and closed positions.

Injuries may occur in any human endeavor and track and field events are no exception. In particular, hurdling has heretofore had more than its share of injuries to participants. A principal reason for this has been that the standard hurdles are solid unitary assemblies. Thus, if a runner misses the hurdle and falls onto it or catches his foot or leg on it, he is likely to be injured. The top bar of the hurdle is ordinarily rigid and does not give under the fall of the runner. Moreover, hurdles are not easily tipped over and accordingly athletes may be severely injured by accidentally running directly into the hurdle. A perhaps equally serious problem with existing hurdles is that the concern on the part of the athlete for the risk of an accident is so great that it is believed that many athletes will either not participate in this event or do not do as well as they might if the hurdle being used were absolutely safe.

Accordingly, it is a principal object of this invention to provide a hurdle device which will minimize if not eliminate injuries.

A related object of this invention is to provide a hurdle device which includes horizontally pivotal gates which may be actuated to an open position when accidentally hit by a runner.

A still further related object of this invention is to provide a hurdle device which has a pair of gate members pivotally connected to a pair of standards wherein a substantially crossbar is formed which is adapted to yieldingly pivot in both vertical and horizontal planes.

Another related object of this invention is to provide a hurdle device which can be quickly adjusted to vary the force required to open the gates.

A still further object of this invention is to provide a hurdle device which has a leveler assembly for maintaining the gate members in horizontal alignment when closed.

Another object of this invention is to provide a hurdle device which may be easily upset by being rocked over if hit straight on.

A still further related object of this invention is to provide a hurdle device having a pair of gate members forming a top bar which are yieldingly locked in either an open position or a closed position.

Another important object of this invention is to provide a hurdle device which may be quickly collapsed for transporting and storage.

A further object of this invention is to provide a hurdle device which is simple in design, economical to manufacture and refined in appearance.

These and other objects will be aparent to those skilled in the art.

This invention consists in the construction, arrangements, and combination of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, specifically pointed out in the claims, and illustrated in the accompanying drawings, in which:

FIG. 1 is a perspective view of the hurdle device illustrating several of the various positions to which the gate members may be moved;

FIG. 2 is a front-on elevation view of the hurdle device as a runner approaching it might view it;

FIG.3 is a left end elevation view of the hurdle device in FIG. 2;

FIG. 4 is an end elevation view of the hurdle device in its collapsed condition;

FIG. 5 is a fragmentary enlarged exploded perspective view of the upright standard including the means for maintaining the gate members in either open or closed positions;

FIG. 6 is a fragmentary elevation view of a gate member on the upright standard when the gate member is in its horizontal closed position;

FIG. 7 is a fragmentary top plan view of the assembly illustrated in FIG. 6;

FIG. 8 is a top plan view similar to FIG. 7 but with the gate member pivoted 90 degrees;

FIG. 9 is a fragmentary exploded view of the registering free end portions of the gate members; and

FIG. 10 is a cross-sectional view taken along line **10**—**10** in FIG. 2 illustrating one of the frame members interconnecting the two upright standards.

In FIG. 1 of the drawings, the hurdle device of this invention is referred generally by the reference numeral **10** and is shown to include a pair of standards **12** having pivotal gate members **14** which cooperate to form a top bar for the hurdle. A pair of frame members **16** and **18** interconnect the upright standards **12**.

In FIG. 5, the upper part of the vertical upright **12** is illustrated. The gate member **14** is connected to a solid shaft **20** (FIG. 1) which is telescopically received in an elongated tube **22**. The lower end of the shaft **20** is provided with an apertured ear **23** engaged by a tension coil spring **24** which extends into the upper end of the tube **22**. A stub shaft portion **26** disposed in the tube **22** has an apertured ear **28** which detachably engages the lower hook of the coiled spring **24**. The stub shaft **26** is provided with a threaded opening **30** which is engaged by a threaded bolt **32** having a handle member **34** on its outer end. The bolt **32** is inserted into a longitudinal slot **36** in the tube **22** and is adapted to engage any one of a plurality of vertically spaced apart horizontally disposed slots **38**.

After the shaft **20** has been inserted into the tube **22**, a stud element **40** is inserted through a cam slot **42** and is received in a threaded hole **44** in the shaft **20**. The cam slot **42** includes a pair of generally vertical slot portions **46** which are interconnected by an upper slot portion **48**. The upper slot portion **48** is provided with a concave lower edge surface **50** while the vertical slots **46** have lower ends **52** which serve the same function as the concave edge surface **50**. It is obvious that when the stud element **40** is resting on the upper cam surface **50** that the spring **24** is under greater tension than when it is in engagement with either of the slots **46** at their ends **52**. Moreover, the tension in the spring **24** may be selectively adjusted by moving the stud **32** into the appropriate slot **38** from the common vertical slot **36**.

The lower end of the tube **22** also telescopically receives a cylindrical member **56** having a plurality of vertically spaced holes **58** formed therein. The lower end of the cylindrical member **56** is received in a hollow tube **60** provided with a removable pin element **62** for selective engagement with one of the openings **58**. A nut element **64** is welded onto the outer face of the tube **60** and is disposed in alignment with the opening therethrough to threadably engage the pin element **62** (FIG. 2).

A base foot member **66** is formed integrally with the lower end of the tube **60**. As seen in FIG. 3, each of the ends **68** of the foot member **60** are tapered outwardly and upwardly to thereby permit the upright standard **12** to rock in either direction along a line paralleling the line of travel of a runner.

A leveler assembly **70** as illustrated in FIGS. 1 and 6 through 8 interconnects the gate members **14** to the upright shafts **20** and thereby maintains the gate members **14** in horizontal alignment. The leveler assembly **70** includes a channel member **72** which embraces longitudinally the shaft **20**. A leaf spring **74** is placed against the shaft **20** between the side walls of the channel **72**. An outwardly facing convex surface **76** is formed longitudinally of the base portion of the channel **72** and as illustrated in FIG. 7 matingly engages an outwardly facing concave surface **78** formed in the outer side of the base of a channel **80** bolted to the outer end of the gate member **14**. A bolt member **82** extends through the base portions of the channel members **72** and **80** and also the shaft **20** as well as the leaf spring **74** and finally is engaged by a manually adjustable nut element **84**. It is thus obviously seen that when the mating surfaces **76** and **78** are in engagement with each other (FIGS. 6 and 7) the gate **14** is maintained in a positive horizontal position as seen in FIGS. 1 and 2.

The gates **14** are illustrated as being constructed from wood material; however, they may be made of any other suitable material which has sufficient rigidity to assume a horizontal position when in use. It may be desirable to cover the wooden gates **14** with rubber or plastic material to further minimize the chance of injuring a runner upon contacting one of the gate members.

To present a continuous bar across the top of the hurdle **10**, a pair of sleeve elements **90** having registering fingers **92** have been provided on the inner free ends of the gate members **14** (FIGS. 1, 2 and 9).

Interconnecting the upright standards **12** are a pair of frame assemblies **94** and **96**. Each of the frame assemblies **94** and **96** include a pair of arms **98** pivotally connected at their inner ends by a bolt fastener **100** and pivotally connected at their outer ends to the standards **12**. In particular, the upper frame assembly **94** interconnects the tube members **22** while the lower frame assembly **96** interconnects the lower tube members **60**. The upper frame assembly **98** should be spaced close enough to the gate members **14** to prevent the runners from going directly through the hurdle **10** but on the other hand low enough to prevent any injury to the runner should he fall on or through the gate members **14**.

It is seen that the hurdle unit **10** is quite versatile and can be adjusted in three principal ways to meet the requirements of the particular field event. First, the height of the bar formed by the gate members **14** is determined by the adjustment of the member **56** relative to the tube **60**. The stud **62** is accordingly placed in the appropriate aperture **58** in the telescopic member **56**. Secondly, the tension in the spring **24** is adjusted by moving the stud **32** to the appropriate slot **38** thereby controlling the amount of force required to open the gates **14**. The lower the stud **32** is positioned along the tubular member **22**, the greater the force required to open the gates **14** as the locking engagement of the pin **40** with the cam surface **50** will be greater. Thirdly, the amount of force required to pivot the gates **14** in a vertical plane as illustrated in FIG. 1 may be varied by adjusting the leveler **70**. The hand sized nut **84** bears against the leaf spring **74** to maintain the convex surface **76** in mating engagement with the concave surface **78** in the channel members **72** and **80** respectively.

Accordingly it is seen that the possibility of injuries to the runner are minimized by the use of this versatile hurdle. If the runner catches his thigh or ankle on the gates **14** as he passes over them they will simply pivot in a horizontal plane as indicated by the arrows in FIG. 1 to an open position as shown by the dash lines. The runner will receive at the most a bruise. If on the other hand the runner should fall on top of the gates **14** they will pivot downwardly as indicated by the arrows to the dash line positions. Lastly, should the runner hit the hurdle straight on, it will be able to fall over easily as the base feet **66** are rounded on their ends permitting the hurdle to rock easily and fall over.

Additional versatility of the hurdle **10** is illustrated in FIG. 4 where the device is collapsed for transporting or storage. The arms **14** are pivoted downwardly to their vertical positions and the frame assemblies **94** and **96** are loosened and moved upwardly thereby drawing together the vertical upright assemblies **12**. The bolt assemblies **100** may be retightened to lock the hurdle **10** in its collapsed condition of FIG. 4.

Some changes may be made in the construction and arrangement of my hurdle without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim:

1. In a hurdle device, comprising, a pair of spaced apart standards, a pair of gate members, means pivotally connecting said gate members to said standards to pivot in a horizontal plane, means yieldingly maintaining said gate members in alignment with each other and in a horizontal plane, said gate members having free ends with fingers meeting in registering relationship whereby a substantially continuous bar is formed between said standards and said fingers in registering relationship being freely movable relative to each other in a horizontal plane.

2. In a hurdle device, comprising, a pair of spaced apart standards, a pair of gate members, means pivotally connecting said gate members to said standards, means for yieldingly maintaining said gate members in a closed position in alignment with each other and in a horizontal plane, and means for moving and holding said gate members in an open position upon said gate members being horizontally pivoted to a predetermined angle, said gate members being in a horizontal plane in said open position.

3. In a hurdle device, comprising, a pair of spaced apart standards, a pair of gate members, means pivotally connecting said gate members to said standards, spring and cam means for yieldingly maintaining said gate members in a closed position in alignment with each other and in a horizontal plane and upon said gate members being pivoted to a predetermined angle towards an open position, said means yieldingly maintaining said gate members in said open position, and said gate members being in a horizontal plane in said open position.

4. The structure of claim **3** and adjustable means for varying the amount of force required to move said gate members from an open position to a closed position.

5. In a hurdle device, comprising, a pair of standards, a pair of arms pivotally connected together and pivotally connected to said standards, a gate member pivotally connected to each of said standards, said hurdle device adapted to be moved between an extended position and a collapsed position, said arms and said gate members each being disposed in a horizontal plane and perpendicular to said standards when in said extended position and substantially parallel to said standards when in said collapsed position and said standards being moved between

a spaced apart position when said device is in its extended position to a position being closely adjacent each other when said device is in said collapsed position.

6. The structure of claim 5 wherein said standards each have base members which extend only along a line being parallel to the line of travel over said hurdle, each of said base members having outer ends with longitudinally outwardly and upwardly tapering bottom surfaces.

7. The structure of claim 5 wherein said standards each have base members which extend only along a line being parallel to the line of travel over said hurdle and said base members each having an end portion on one side of said standards having a bottom surface being tapered longitudinally outwardly and upwardly whereby said hurdle may rock over upon being hit.

8. In a hurdle device, comprising, a pair of upright standards, each of said standards including a pair of vertically disposed telescoping upper and lower members, said telescoping members being adapted to rotate relative to each other, a gate member pivoted to each of the upper telescopic members, said gate members adapted to move between closed and open positions, said gate members having free ends which are closely adjacent each other when said gate members are in a closed position and spaced apart when in said open position, a spring means interconnecting said telescoping members, cooperating cam means on each of said telescoping members to yieldingly lock said members in first and second positions

against relative rotation, said spring means tending to maintain said cam means on each of said telescoping members in engagement with each other in both said first and second positions whereby upon said gate member being moved a predetermined distance towards an open position said cam means yieldingly locks said telescoping members in said first position and said gate in said open position and upon said gate being returned to said closed position said cam means yieldingly locks said telescoping members in said second position and said gate in said closed position.

9. The structure of claim 8 wherein one of said cam means includes a pair of cam surfaces spaced apart relative to the longitudinal axis of said telescoping members, said other cam means being in engagement with one of said surfaces in said first position and the other surface in the second position.

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