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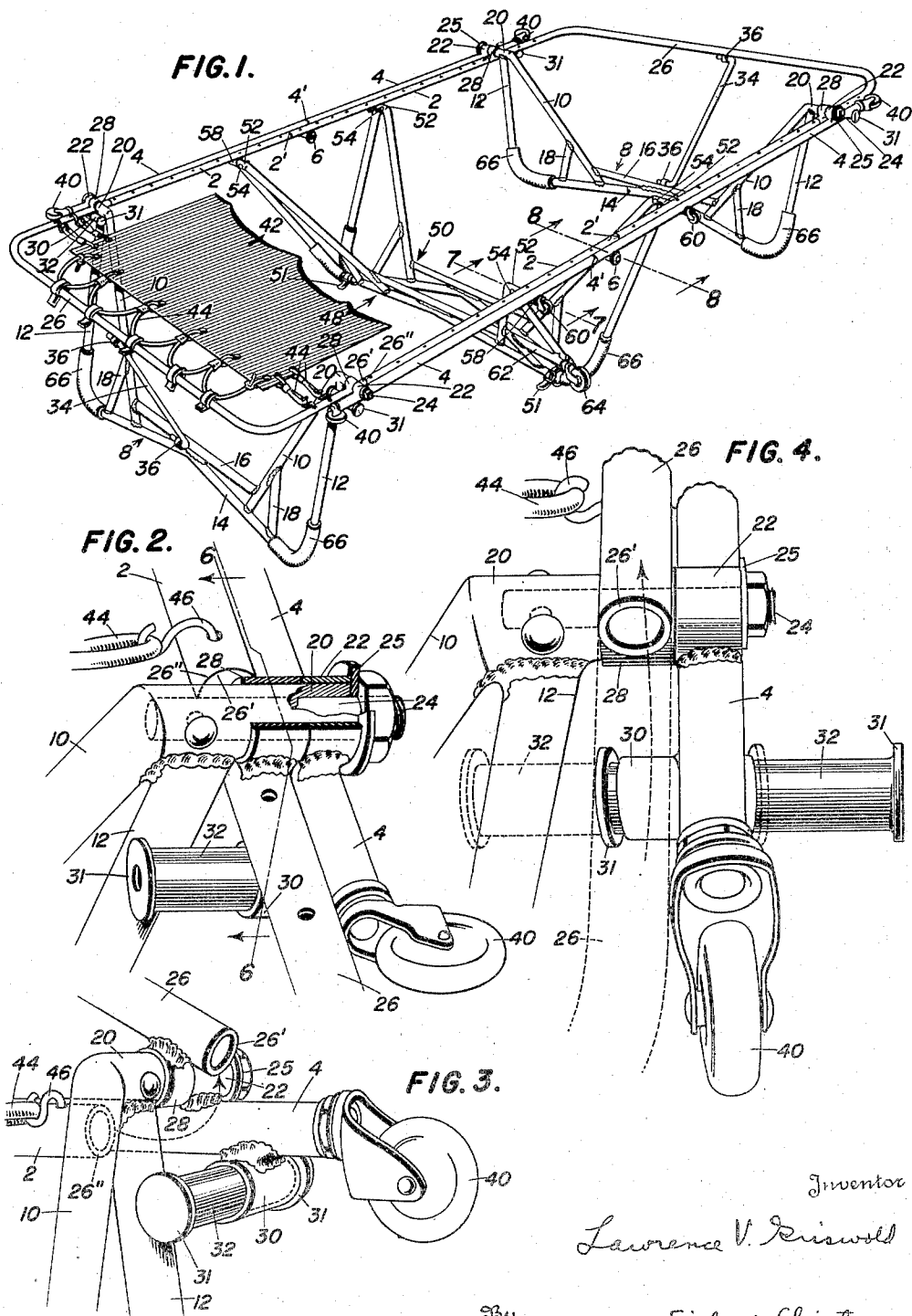
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FOLDABLE FRAME FOR TRAMPOLINES, BEDS OR THE LIKE

Filed April 5, 1946

2 Sheets-Sheet 1



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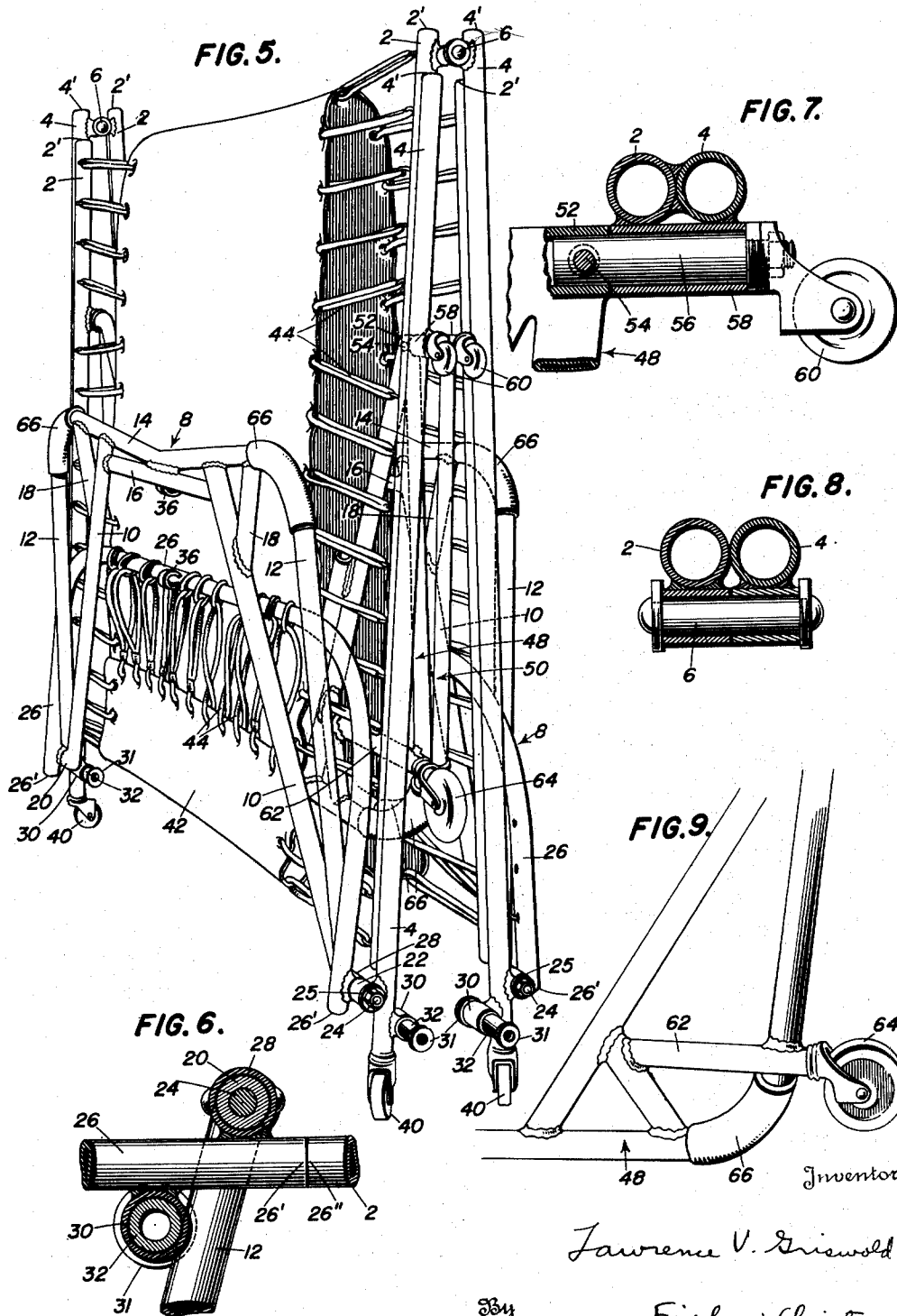
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UNITED STATES PATENT OFFICE

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FOLDABLE FRAME FOR TRAMPOLINS, BEDS,
OR THE LIKE

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10 Claims. (Cl. 5—111)

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This invention is an improved foldable framework, particularly for a trampoline, but also capable of use in folding beds, cots and the like. A trampoline is an apparatus used by acrobats, gymnasts and vaudeville performers, and consists essentially of a resiliently held, flexible tumbling surface or mat, mounted in a rigid frame by means of springs extending between the four edges of the mat and the corresponding surrounding sides and ends of the rigid frame.

Apparatus of this sort is usually made foldable, so as to be more readily transportable from one theatre to another, as in a vaudeville circuit.

The present invention is an improvement in the folding construction of a trampoline frame, so that it can be readily folded up for transportation and can be readily unfolded, and when unfolded will be sufficiently strong and rigid to withstand the rather severe stresses to which it is subjected in use.

The principal feature of the invention is a construction wherein a leg frame, and an end section of the main frame, are each pivoted on a transverse axis at one end of the apparatus and positioned and held in extended and operative position by an abutment which engages both the leg frame and the end section. This abutment preferably comprises a fixed, tubular portion, carried adjacent one end of the main frame, and a movable, plug-like portion, slidable in the fixed tubular portion, into and out of the path of the swingable leg frame. The fixed portion of the abutment engages and limits the swinging movement of the end section, and the slidable plug member, when extended, engages and limits the swinging movement of the leg frame.

More specifically, the end section and leg frame are pivoted on a common transverse axis on the upper side of the longitudinal side members of the main frame, while the limiting abutments are carried by the side members on the lower or under side thereof, adjacent their ends.

When the end section and leg frame are in extended position, in engagement with the limiting abutments, they are preferably detachably secured to each other for rigidly holding them in extended position. Detachment of this holding means and disengagement of the leg frame from the abutment by sliding the plug of the abutment out of the way, allows the leg frame to be folded up.

The main frame of the apparatus preferably comprises two parallel tubes welded together

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alongside one another and hinged together at about the middle for folding the apparatus about a central transverse axis. When so folded, the entire apparatus may be rolled about on rollers or casters positioned at each of the four outer ends of the two longitudinally extending side members, or on rollers or casters positioned on one side, as will be described.

Another valuable feature of the invention is that the frame may be set up for use, or folded up without the use of nuts, bolts or the like, and without the use of any tools.

Further advantages of construction and operation will be described in connection with the accompanying drawings illustrating the preferred embodiment of the invention.

In these drawings:

Fig. 1 is a perspective view of the trampoline in unfolded, operative position;

Fig. 2 is an enlarged perspective view of the joint forming the pivotal mounting of the leg frame and end section at one end of the apparatus;

Fig. 3 is a perspective view of the same joint with the end section partially folded up;

Fig. 4 is a perspective view of the same joint looking from the right of Fig. 3;

Fig. 5 is a perspective view of the apparatus folded up;

Fig. 6 is a section on the line 6—6 of Fig. 2;

Fig. 7 is a section on the line 7—7 of Fig. 1;

Fig. 8 is a section on the line 8—8 of Fig. 1;

Fig. 9 is a fragmentary detail of a portion of a central leg frame showing a caster mounting.

Referring now to these drawings, the trampoline comprises longitudinal side members composed of inner and outer tubes 2 and 4, welded together to form rigid side members which are hinged to each other at about their mid point by means of a hinge bolt 6 mounted in a bearing welded, respectively, as shown in Fig. 5, to one end of the inner tube 2 and to the adjacent end of the outer tube 4.

One of the tubes 2 is shorter than the other, as shown at the top of Fig. 5, and their ends 2' form abutting faces, which faces are in contact when the tubes are in alignment, as shown in Fig. 1. Correspondingly, the tubes 4 are of different lengths and their ends form abutting faces 4', in contact when the tubes are in alignment. The positioning lock formed by these abutting faces are on opposite sides of the pivot 6, and in staggered relationship, as shown in Fig. 1.

The foldable end construction, forming an im-

portant feature of this invention, will now be described. A leg frame, indicated generally at 8, and approximately U-shaped, comprises converging end members 10 and 12 connected with a bottom member 14, formed into a strong rigid truss-like structure by braces 16 and 18, welded in place. Converging members 10 and 12 are welded to each other and welded to a bearing sleeve 20, which sleeve is rotatable in a sleeve 22 welded near one end of the outer longitudinal frame member 4. A mounting bolt 24 and washer 25 serve to mount these parts in position.

The end section 26 of the frame is approximately U-shaped and its ends are welded to sleeves 28 surrounding the sleeve 20, so that it can swing about this sleeve as shown in Fig. 3. When the frame 26 is in extended position, the end face 26' of tube 26 abuts against the end face 26'' of the tube 2, the contacting of these abutments serving to position the end frame 26 in horizontal position. It is further held in horizontal position by portion 30 of the limiting abutment, now to be described.

The limiting abutment, forming an important feature of this invention, comprises an open ended sleeve 30, welded to the underside of side tube 4, as shown in Fig. 3. This tube extends inwardly far enough to serve as a limiting abutment against which the end section 26 will engage when unfolded to the horizontal position. The end section 26 is further positioned and held by the contacting faces 26' and 26'', as already described.

The limiting abutment further comprises a plug or sleeve 32, slidable back and forth in sleeve 30, into and out of the path of the strut 12 of the leg frame. Plug 32 is provided with limiting flanges 34 at each end. When the slidable abutment 32 is moved to the left, to its operative position, as in Figs. 1, 2 and 3, it engages with the strut 12 of the leg frame 8 and locks the leg frame in operative position.

In order further to hold the parts in this position, the leg frame and end section may be detachably inter-connected by a rod, strap or the like 34, detachably engaged with the leg frame and end section by means of collars 36, for example.

In order to fold up the apparatus, the connection 34, if used, is removed, plug 32 is pushed to the right, sliding through its sleeve 30 out of engagement with strut 12, and then the leg frame and end section are both swung about their pivots to positions alongside the main frame, as shown in Fig. 5.

Four of the limiting abutments 30, 32 are of course provided, one near each corner of the apparatus.

In the preferred construction the fixed sleeve 30 serves as the abutment for the foldable end section 26 and the movable plug serves as the abutment for the leg frame 8.

On each end of each longitudinal tube 4 is a caster or roller 40, so that when the apparatus is folded, as in Fig. 5, it can be rolled about on these casters.

The mat or sheet 42 is provided with the usual springs or rubber cables 44 along all four edges, the outer ends of which engage with loops or hooks 46 carried by the side and ends of the frame.

A pair of truss leg frames, 48 and 50, similar in structure to the end leg frames 8, are pivoted near the middle of the frame, on opposite sides of the hinge joint 6. In use, they are detachably

secured together, as by straps 51. The respective end struts have their respective upper ends united in a common sleeve 52, Fig. 7, which is secured by a hinge bolt 54 to a stud 56 journaled in a bearing sleeve 58 welded to the underside of the main frame tubes 2 and 4. On the outer end of stud 56 is journaled a roller or caster 60.

One of the leg frames, such as 48, Fig. 9, is provided with an outwardly extending strut 62 welded thereto, on the outer end of which is swiveled a caster 64.

When the frame is folded as in Fig. 5, it can be rolled about on casters 40. The frame can be turned onto one side and rolled about on casters 60 and 64.

Rubber or other floor engaging sleeves 66 are provided where the several leg frames contact the floor.

To summarize: The frame is set up by pulling the side frame members, Fig. 5, into alignment, they being held in alignment by contact of the abutting faces 2, 2' and 4, 4'. With the locking abutments 32 moved out of the way, leg frames 14 are swung downwardly until past the abutments, and then locking abutments 32 are pushed out to engage strut 12 of the leg frame. Then end section 26 is swung down, until it engages abutments 30, this also bringing faces 26 and 26' into engagement. The leg frame and end section are strongly secured together by a rod or strap 34. The two middle frames 48 and 50 are coupled together and the apparatus is ready for use.

It is important to note that no bolts or screws need to be tightened or loosened in unfolding or folding up the apparatus and that no special tools are required for either operation. The apparatus may be folded up or unfolded in a minute or two.

While the apparatus has been described in detail, it should be understood that the invention is not limited to these exact details, but may be carried out in other ways.

I claim as my invention:

1. A foldable framework for a trampoline, bed or the like, comprising longitudinally extending side members, a leg frame and an end frame, each pivoted to said side members, adjacent the ends thereof, abutment means, carried by said side members, and including a fixed portion, engageable with the end frame, for limiting its pivotal movement in one direction, and a movable portion, movable into and out of the path of movement of the leg frame, for limiting the pivotal movement of said leg frame in the opposite direction.

2. A foldable framework for a trampoline, bed or the like, comprising longitudinally extending side members, a leg frame and an end frame, each pivoted to said side members, adjacent the ends thereof, abutment means, carried by said side members, and including a fixed tubular portion, engageable with the end section, and a movable portion, slidable in said tubular portion, into and out of the path of movement of the leg frame, for limiting the pivotal movement of said end section and leg frame.

3. A foldable framework for a trampoline, bed or the like, comprising longitudinally extending side members, a leg frame and an end frame, each pivoted to said side members, adjacent the ends thereof, on a common transverse axis, abutment means, carried by said side members, and including a fixed portion, engageable with the end frame for limiting its unfolding movement, and

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a movable portion, movable into and out of the path of movement of the leg frame, for preventing it from swinging to the folded position.

4. A foldable framework for a trampoline, bed or the like, comprising longitudinally extending side members, a leg frame pivoted to said side members near the ends thereof, an end section pivoted to said side members near the ends thereof, and abutment means, positioned between said leg frame and end section and engageable with each, for limiting the pivotal movement of the end section as it unfolds and for preventing pivotal movement of the leg frame toward the folded position.

5. A foldable framework for a trampoline, bed or the like, comprising longitudinally extending side members, a foldable leg frame pivoted to said side members near the ends thereof, an end section pivoted to said side members near the ends thereof, and variably positionable abutment means, positioned to engage the side members and the leg frame for limiting the unfolding movement of the leg frame.

6. A foldable framework for a trampoline, bed or the like, comprising longitudinally extending side members, a leg frame pivoted to said side members near the ends thereof, an end section pivoted to said side members near the ends thereof, on a common transverse axis, and abutment means, positioned between said leg frame and end section and engageable with each, for limiting the unfolding pivotal movement of the end section and for preventing the leg frame from pivoting toward its folded position.

7. A foldable framework for a trampoline, bed or the like, comprising longitudinally extending side members, an end section and a leg frame, each pivoted to swing about an axis on one end of said longitudinal members, abutment means carried by the opposite end of said longitudinal members and engageable with both the end section and leg frame for limiting their pivotal movement, said abutment means being movable out of engagement with the leg frame to allow it to be folded against the body of the apparatus.

8. A foldable framework for a trampoline, bed or the like, comprising longitudinally extending side members, an end section and a leg frame,

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each pivoted to swing about a common transverse axis on one end of said longitudinal members, abutment means carried by the opposite end of said longitudinal members and engageable with both the end section and leg frame for limiting their pivotal movement, said abutment means being movable out of engagement with the leg frame to allow it to be folded against the body of the apparatus.

9. A foldable framework for a trampoline, bed or the like, comprising longitudinally extending side members, a leg frame pivoted to said side members, adjacent the ends thereof, to swing on a transverse axis, abutment means, carried by the side members and movable into and out of the path of movement of the leg frame, for limiting the unfolding pivotal movement of the end section, and for preventing the pivotal movement of the leg section toward the folded position, and rollers carried at the outer ends of said longitudinal side members, beyond said abutment means.

10. A foldable framework for a trampoline, bed or the like, comprising longitudinally extending side members, a leg frame and an end frame, each pivoted to said side members, adjacent the ends thereof, abutment means including a fixed portion for limiting the pivotal movement of the end frame toward its unfolded position and including a variably positionable portion for preventing the pivotal movement of the leg frame toward its folded position, and means for detachably securing together the end frame and the leg frame when in the unfolded position.

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