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V. E. BAILEY

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TUMBLING TOY

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2 Sheets-Sheet 1

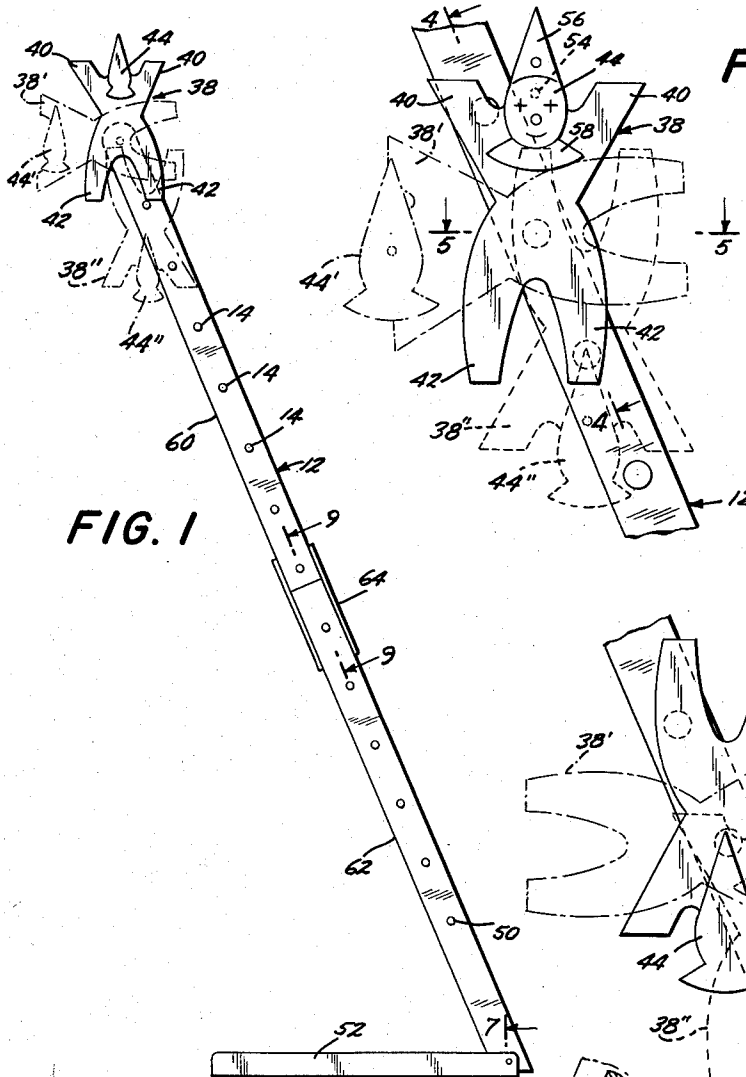


FIG. 1

FIG. 2

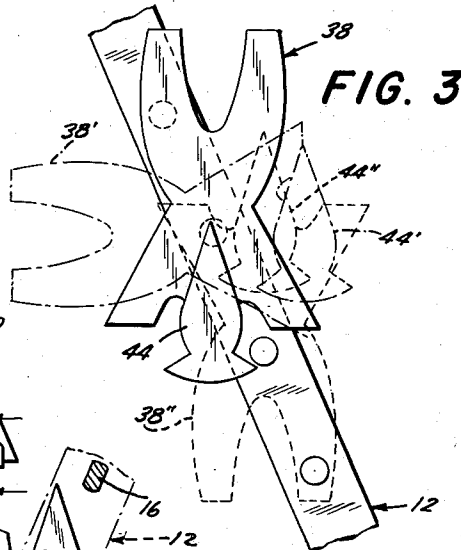
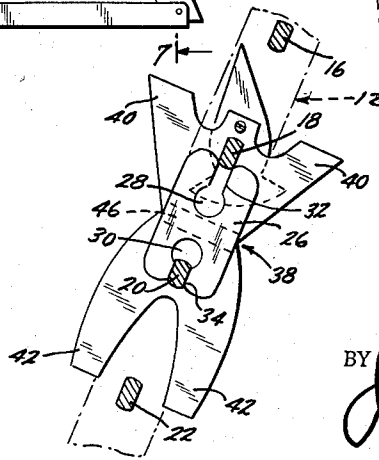


FIG. 3

FIG. 6



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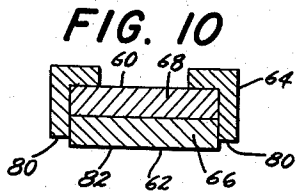
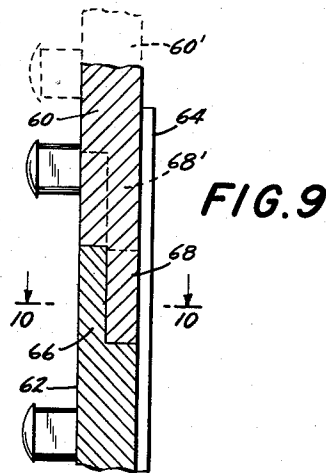
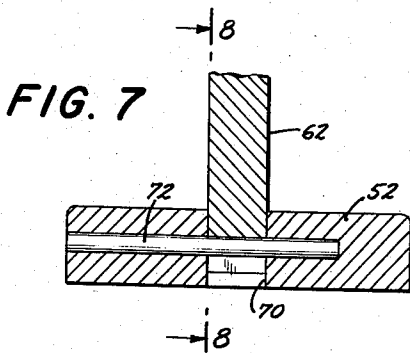
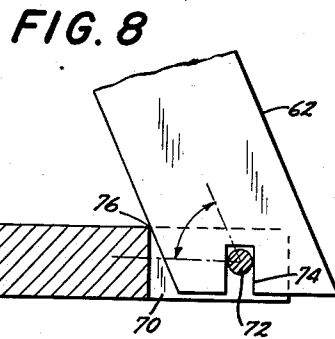
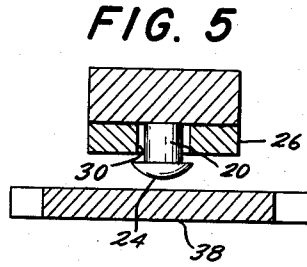
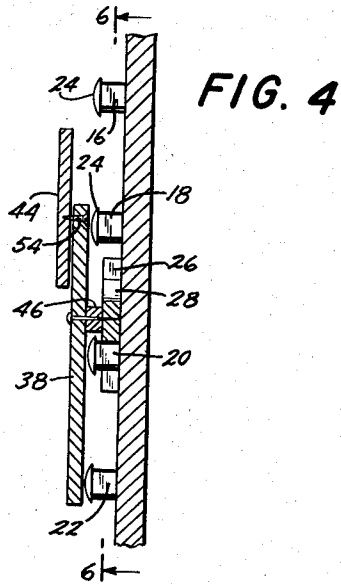
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2 Sheets-Sheet 2



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2,964,875

TUMBLING TOY

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13 Claims. (Cl. 46—130)

This invention relates to toys, and more particularly to a tumbling figure toy.

The primary object of the present invention is to generally improve tumbling figure toys.

A more particular object is to provide a tumbling figure toy which is amusing and at the same time somewhat mysterious in its action because the mechanism is concealed by the tumbling figure.

The figure operates gravitationally and descends a post, tumbling as it descends. One object of the present invention is to increase the apparent action and acrobatics of the toy figure, for which purpose the head is pivoted and weighted so that it rotates relative to the body of the figure as it tumbles.

A further object is to improve the gravitational action of the toy, and I have found that this may be done by disposing the post in a somewhat sloping instead of truly upright position.

Still another object of the invention is to improve the packaging of the toy for compactness, while providing a relatively long post for longer maintained operation of the toy, and for this purpose the post and its supporting base are arranged in knock-down or come-apart relation.

To accomplish the foregoing general objects, and other more specific objects which will hereinafter appear, my invention resides in the tumbling toy elements and their relation one to another as are hereinafter more particularly described in the following specification. The specification is accompanied by drawings, in which:

Fig. 1 in an elevational view showing a toy embodying features of my invention;

Fig. 2 is a fragmentary view drawn to enlarged scale and explanatory of the operation of the figure as it tumbles through a half turn;

Fig. 3 is a similar view explanatory of the operation of the figure as it tumbles through another half turn;

Fig. 4 is a section taken approximately in the plane of line 4—4 of Fig. 2;

Fig. 5 is a transverse section taken approximately in the plane of line 5—5 of Fig. 2;

Fig. 6 is a section taken approximately in the plane of line 6—6 of Fig. 4 and is also a rear view of the tumbling figure;

Fig. 7 is a section taken approximately in the plane of line 7—7 of Fig. 1 but drawn to enlarged scale;

Fig. 8 is a section taken approximately in the plane of line 8—8 of Fig. 7;

Fig. 9 is a section taken approximately in the plane of line 9—9 of Fig. 1, but drawn to larger scale as in Figs. 7 and 8; and

Fig. 10 is a transverse section taken approximately in the plane of line 10—10 of Fig. 9.

Referring to the drawing, and more particularly to Fig. 1, the toy comprises a nearly upright but preferably sloping post 12 carrying a line of preferably uniformly spaced studs 14. These studs are flattened in the direction of the post, as is best shown in Fig. 6 at 16, 18, 20

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and 22. The studs are quite short, as will be seen in Figs. 4 and 5, and preferably have thin heads 24 at their ends.

Referring now to Fig. 6, the tumbling figure includes a somewhat H-shaped piece 26 defining two spaced holes 28 and 30 which are large enough to receive and to turn freely around the studs. The piece 26 also has narrower approach slots 32 and 34, from the ends of the pieces to the holes 28 and 30. These slots are dimensioned to freely receive the studs edgewise, but not crosswise. In Fig. 6 it will also be seen that the piece 26 is longer than the spacing or clearance between the studs, but at the same time the distance between the upper hole 28 and the lower end of the piece, or between the lower hole 30 and the upper end of the piece, is less than the spacing between the studs. The flat faces of the stud are in the direction of the post, and the entrant end or mouth of the slots 32 and 34 is preferably divergent in order to more readily find and slide down a subjacent stud.

The H-shaped piece 26 is preferably concealed by a substantially larger figure, generally designated 38. In the present case the figure 38 simulates a clown with outstretched arms 40 and legs 42 as well as a head 44. However, it will be understood that various figures and posts may be simulated, for example a monkey descending the trunk of a palm tree. Referring now to Figs. 4 and 5, the figure 38 is secured in front of the piece 26, and is spaced therefrom enough to clear the heads 24 of the studs. In the present case this is done by using a spacer 46 disposed crosswise between the holes 28 and 30 as shown in dotted lines in Fig. 6, but a different number and location of spacers may be employed, so long as the spacers do not interfere with the studs and the heads thereof.

Reverting now to Fig. 1, the lower slot of the H-shaped piece may be slid downwardly over the uppermost stud and released, whereupon it turns as indicated by the successive broken line positions 38' and 38'' in Fig. 1. The slope of the post encourages a self-starting rotation in counterclockwise rotation as viewed in Fig. 1. If the post is sloped toward the right instead of toward the left, the figure will tumble in clockwise direction.

When the figure reaches the inverted upright position shown in Fig. 1, it continues turning somewhat further by inertia, and when the axis of the figure is parallel to the post, the figure slides downward on to the next stud. This is shown in Fig. 6 in which the piece 26 has already slid part way downward, and it will be understood that on completion of the downward movement, the hole 30 will move all the way down onto the stud 20, while the slot 32 will leave and clear the stud 18.

At this time the figure is in unstable equilibrium and is sloping because of the slope of the post, and therefore the figure continues turning for another half revolution, and so descends the post all the way from top to bottom where it falls free of the lowermost stud 50, if that stud is placed high enough from the base 52. The figure is anchored on the stud at all times except when the slot is parallel to the flattened side walls of the stud.

To increase the action and simulated acrobatics of the figure, the head 44 is preferably pivoted instead of being a fixed part of the Figure 38. Referring to Fig. 4, the head 44 is freely pivoted on Figure 38 by means of a small wood screw 54 which is kept loose so that the head will turn freely on the figure. Referring now to Fig. 2, the face portion 44 is simulatedly wearing a dunce cap 56 and there is a ruffle or collar portion 58. Because of its configuration, the dunce cap 56 is light compared to the collar portion 58. The entire piece may for convenience be referred to as a head assembly. The pivot screw 54 is located near the top of the head. For both

reasons the pivot is so located that the center of mass of the head assembly is well below the pivot 54, so that the head assembly remains upright during the tumbling rotation of the figure, and appears to be rotating in grotesque fashion relative to the figure.

This will be clear from inspection of Figs. 1, 2 and 3. In Figs. 1 and 2, when the body has turned to the position 38', the head is in the position 44', and when the body has turned to the position 38'', the head is in the position 44''. In Fig. 3, when the body is in the inverted solid line position 38, the head is in position 44. When the body has turned to the broken line position 38', the head is in the position 44', and when the body has turned to upright position 38'' the head is in the position 44''. It should be understood that although the head assembly is merely remaining upright throughout this action, the appearance is much more complex because the head appears to be twisting and turning relative to the body.

The rotation of the head assembly helps improve the gravitational action of the toy, although this detail is not essential to successful operation. More specifically, when the toy starts to tumble, as shown in Figs. 1 and 2, the pivoting of the head moves the center of mass of the entire figure outward in the position 38'. This is so because the center of mass of the head assembly moves further from the mid-region or pivot hole of the figure. This speeds up and makes more dependable the turning of the figure, and the center of mass and leverage is still further increased in the position 38''. The rotation is thus readily and dependably carried beyond dead center to the point where the figure is parallel to the post and slides down over the next lower stud.

It is now the leg portion rather than the arm portion which is causing continued rotation of the figure, as shown in Fig. 3, and at this time the center of mass of the head assembly moves inward toward the pivot hole of the figure, thus decreasing the mass of the arm portion of the figure, which in a relative sense, means increasing the effective mass of the leg portion of the figure, and so improving the speed and dependability of the continued rotation. Finally, as the figure approaches the upright position shown at 38'' in Fig. 3, the center of mass of the head assembly is moved still closer to center, so that the overall mass is biased still further in the direction of insuring completion of rotation beyond dead center to a position parallel to the post, so that the figure will slide down over the next lower stud.

It is desirable that the post be made rather long so that the tumbling action will continue for considerable time. It is also preferable to provide for compact packaging of the toy for shipment and storage in the store and at home. For this purpose the post 12 is preferably made of two readily separable halves 60 and 62. These have mating means at their adjacent ends. More specifically, and referring to Figs. 1, 9 and 10, one half 62 has a socket portion 64 dimensioned to receive the adjacent end of the portion 60. Referring to Fig. 9, the upper end of part 62 is cut away, leaving a tenon 66 to receive a matingly cut away part of post 60, leaving a tenon 68. The relation of the parts as they come together is shown by the broken line position 60' with its tenon 68'.

The two-part post is also detachably related to the base 52, and referring to Figs. 7 and 8, the base 52 is cut away at 70 to receive the lower end of post 62. A pin 72 extends across the slot 70 and the lower end of post 62 is itself upwardly notched or slotted as shown at 74. With this arrangement the post is readily inserted downward over the pin 72 and the post thereupon remains in position, its slope being limited by engagement at the point 76.

Whatever form of socket is provided for joining the two halves of the post end to end, it is desirable that the front faces remain flush with the studs in alignment

and uniformly spaced. In Fig. 10, it will be seen that the forward edges 80 of the socket 64 terminate a little behind the front face 82 of the post, thus leaving the front surface of the post as continuous and as unobstructed as though the post were made in a single piece.

It is believed that the construction and operation of my improved tumbling toy, as well as the advantages thereof, will be apparent from the foregoing detailed description. The disposition of the figure in front of the H-shaped piece conceals the latter, and conceals the manner in which it slides down and around the successive studs. An observer who does not study the back of the toy is puzzled as well as amused by the acrobatic performance of the toy as it descends the post. The simulated acrobatics and the performance of the toy are enhanced by the pivoting of the head assembly.

It will be apparent that while I have shown and described my invention in a preferred form, changes may be made in the structure shown, without departing from the scope of the invention as sought to be defined in the following claims.

I claim:

1. A tumbling toy comprising a nearly upright but sloping post carrying a line of uniformly spaced studs, said studs being flattened in the direction of the post and having heads, a somewhat H-shaped piece defining two spaced holes large enough to receive and turn around on the studs, with narrower approach slots from the ends of said piece to said holes dimensioned to receive the studs edgewise but not crosswise, said piece being longer than the spacing between the studs, and the distance between either hole and the remote end of the piece being less than the spacing between the studs, whereby the piece when placed on a top stud turns a half turn edgewise and slides to a next lower stud whereupon it continues turning another half turn edgewise and slides to a still lower stud, and so on.

2. A tumbling toy comprising a post carrying a line of studs, said studs being flattened in the direction of the post, a somewhat H-shaped piece defining two spaced holes large enough to receive and turn around on the studs, with narrower approach slots from the ends of said piece to said holes dimensioned to receive the studs edgewise but not crosswise, said piece being longer than the spacing between the studs, and the distance between either hole and the remote end of the piece being less than the spacing between the studs, a figure larger than said piece secured in front of said piece, whereby the figure when placed on a top stud turns a half turn edgewise and slides to a next lower stud whereupon it continues turning another half turn edgewise and slides to a still lower stud, and so on.

3. A tumbling toy comprising a post carrying a line of studs, said studs being flattened in the direction of the post and having heads, a somewhat H-shaped piece defining two spaced holes large enough to receive and turn around on the studs, with narrower approach slots from the ends of said piece to said holes dimensioned to receive the studs edgewise but not crosswise, said piece being longer than the spacing between the studs, and the distance between either hole and the remote end of the piece being less than the spacing between the studs, a figure larger than said piece secured in front of said piece and spaced therefrom enough to clear the heads of the studs, whereby the figure when placed on a top stud turns a half turn and slides to a next lower stud whereupon it continues turning another half turn and slides to a still lower stud, and so on.

4. A tumbling toy comprising a nearly upright but sloping post carrying a line of uniformly spaced studs, said studs being flattened in the direction of the post and having heads, a somewhat H-shaped piece defining two spaced holes large enough to receive and turn around on the studs, with narrower approach slots from the ends of said piece to said holes dimensioned to receive

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the studs edgewise but not crosswise, said piece being longer than the spacing between the studs, and the distance between either hole and the remote end of the piece being less than the spacing between the studs, a figure larger than said piece secured in front of said piece and spaced therefrom enough to clear the heads of the studs, whereby the figure when placed on a top stud turns a half turn and slides to a next lower stud whereupon it continues turning another half turn and slides to a still lower stud, and so on.

5. A tumbling toy comprising a nearly upright but sloping post carrying a line of uniformly spaced studs, said studs being flattened in the direction of the post and having thin heads, a somewhat H-shaped piece defining two spaced holes large enough to receive and turn around on the studs, with narrower approach slots from the ends of said piece to said holes dimensioned to receive the studs edgewise but not crosswise, said piece being longer than the spacing between the studs, and the distance between either hole and the remote end of the piece being less than the spacing between the studs, a figure with outstretched arms and legs larger than said piece secured in front of said piece and spaced therefrom enough to clear the heads of the studs, whereby the figure when placed on a top stud turns a half turn and slides to a next lower stud whereupon it continues turning another half turn and slides to a still lower stud, and so on, with the figure concealing the piece and its coaction with the studs.

6. A tumbling toy comprising a post carrying a line of studs, said studs being flattened in the direction of the post, a somewhat H-shaped piece defining two spaced holes large enough to receive and turn around on the studs, with narrower approach slots from the ends of said piece to said holes dimensioned to receive the studs edgewise but not crosswise, said piece being longer than the spacing between the studs, and the distance between either hole and the remote end of the piece being less than the spacing between the studs, a figure substantially larger than said piece secured in front of said piece, whereby the figure when placed on a top stud turns a half turn and slides to a next lower stud whereupon it continues turning another half turn and slides to a still lower stud, and so on, and a simulated head pivoted on said figure on a pin extending from front to back for free rotation relative to said figure, said pivot being so located relative to the head that the center of mass is below the pivot, whereby the head remains upright during the tumbling rotation of the figure and thereby appears to be rotating relative to the figure.

7. A tumbling toy comprising a post carrying a line of studs, said studs being flattened in the direction of the post and having heads, a somewhat H-shaped piece defining two spaced holes large enough to receive and turn around on the studs, with narrower approach slots from the ends of said piece to said holes dimensioned to receive the studs edgewise but not crosswise, said piece being longer than the spacing between the studs, and the distance between either hole and the remote end of the piece being less than the spacing between the studs, a figure substantially larger than said piece secured in front of said piece and spaced therefrom enough to clear the heads of the studs, whereby the figure when placed on a top stud turns a half turn and slides to a next lower stud whereupon it continues turning another half turn and slides to a still lower stud, and so on, and a simulated head pivoted on said figure on a pin extending from front to back for free rotation relative to said figure, said pivot being so located relative to the head that the center of mass is below the pivot, whereby the head remains upright during the tumbling rotation of the figure and thereby appears to be rotating relative to the figure.

8. A tumbling toy comprising a nearly upright but sloping post carrying a line of uniformly spaced studs,

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said studs being flattened in the direction of the post and having heads, a somewhat H-shaped piece defining two spaced holes large enough to receive and turn around on the studs, with narrower approach slots from the ends of said piece to said holes dimensioned to receive the studs edgewise but not crosswise, said piece being longer than the spacing between the studs, and the distance between either hole and the remote end of the piece being less than the spacing between the studs, a figure substantially larger than said piece secured in front of said piece and spaced therefrom enough to clear the heads of the studs, whereby the figure when placed on a top stud turns a half turn and slides to a next lower stud whereupon it continues turning another half turn and slides to a still lower stud, and so on, and a simulated head pivoted on said figure on a pin extending from front to back for free rotation relative to said figure, said pivot being so located relative to the head that the center of mass is below the pivot, whereby the head remains upright during the tumbling rotation of the figure and thereby appears to be rotating relative to the figure.

9. A tumbling toy comprising a nearly upright but sloping post carrying a line of uniformly spaced studs, said studs being flattened in the direction of the post and having thin heads, a somewhat H-shaped piece defining two spaced holes large enough to receive and turn around on the studs, with narrower approach slots from the ends of said piece to said holes dimensioned to receive the studs edgewise but not crosswise, said piece being longer than the spacing between the studs, and the distance between either hole and the remote end of the piece being less than the spacing between the studs, a figure with outstretched arms and legs substantially larger than said piece secured in front of said piece and spaced therefrom enough to clear the heads of the studs, whereby the figure when placed on a top stud turns a half turn and slides to a next lower stud whereupon it continues turning another half turn and slides to a still lower stud, and so on, with the figure concealing the piece and its coaction with the studs, and a simulated head pivoted on said figure for free rotation relative to said figure on a pin extending from front to back, said pivot being so located relative to the head that the center of mass is below the pivot, whereby the head remains upright during the tumbling rotation of the figure and thereby appears to be rotating relative to the figure.

10. A tumbling toy comprising a nearly upright but sloping post carrying a line of uniformly spaced studs, said studs being flattened in the direction of the post and having thin heads, a somewhat H-shaped piece defining two spaced holes large enough to receive and turn around on the studs, with narrower approach slots from the ends of said piece to said holes dimensioned to receive the studs edgewise but not crosswise, said piece being longer than the spacing between the studs, and the distance between either hole and the remote end of the piece being less than the spacing between the studs, a clown figure with outstretched arms and legs substantially larger than said piece secured in front of said piece and spaced therefrom enough to clear the heads of the studs, whereby the figure when placed on a top stud turns a half turn and slides to a next lower stud whereupon it continues turning another half turn and slides to a still lower stud, and so on, with the figure concealing the piece and its coaction with the studs, and a simulated head assembly pivoted on said figure for free rotation relative to said figure on a pin extending from front to back, said head assembly simulating a head wearing a dunce cap and having a spread collar portion, and said pivot being so located relative to the head that the center of mass is below the pivot, whereby the head assembly remains upright during the tumbling rotation of the figure and thereby appears to be rotating relative to the figure.

11. A tumbling toy comprising a base detachably sup-

porting a nearly upright but sloping post carrying a line of uniformly spaced studs, said post being made in two readily separable halves having mating means at their adjacent ends, said studs being flattened in the direction of the post, a somewhat H-shaped piece defining two spaced holes large enough to receive and turn around on the studs, with narrower approach slots from the ends of said piece to said holes to receive the studs edgewise but not crosswise, said piece being longer than the spacing between the studs, and the distance between either hole and the remote end of the piece being less than the spacing between the studs, whereby the piece when placed on a top stud turns a half turn edgewise and slides to a next lower stud whereupon it continues turning another half turn edgewise and slides to a still lower stud and so on.

12. A tumbling toy comprising a base detachably supporting a nearly upright but sloping post carrying a line of uniformly spaced studs, said post being made in two readily separable halves having mating means at their adjacent ends, said studs being flattened in the direction of the post and having heads, a somewhat H-shaped piece defining two spaced holes large enough to receive and turn around on the studs, with narrower approach slots from the ends of said piece to said holes to receive the studs edgewise but not crosswise, said piece being longer than the spacing between the studs, and the distance between either hole and the remote end of the piece being less than the spacing between the studs, a figure

substantially larger than said piece secured in front of said piece and spaced therefrom enough to clear the heads of the studs, whereby the piece when placed on a top stud turns a half turn and slides to a next lower stud whereupon it continues turning another half turn and slides to a still lower stud and so on.

13. A tumbling toy comprising a post carrying a line of uniformly spaced studs, said studs being flattened in the direction of the post, a somewhat H-shaped piece defining two spaced holes large enough to receive and turn around the studs, with narrower approach slots from the ends of said piece to said holes dimensioned to receive the studs edgewise but not crosswise, said piece being longer than the spacing between the studs, and the distance between either hole and the remote end of the piece being less than the spacing between the studs, whereby the piece when placed on a top stud turns a half turn edgewise and slides to a next lower stud whereupon it continues turning another half turn edgewise and slides to a still lower stud and so on.

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