Sept. 30, 1958 G. H. BISCHOFF 2,853,831

TOY WORM

Filed June 4, 1956 2 Sheets-Sheet 1

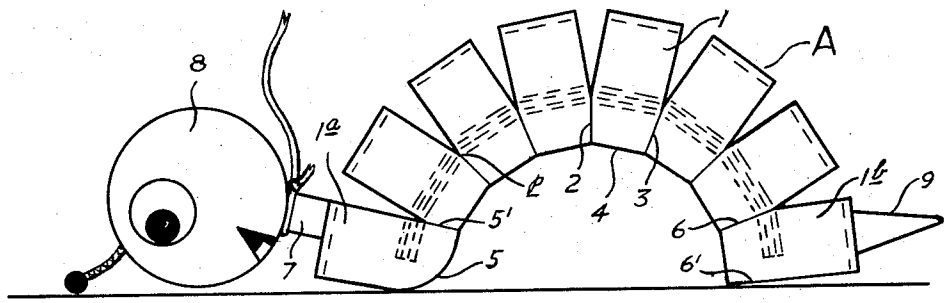


FIG. 1

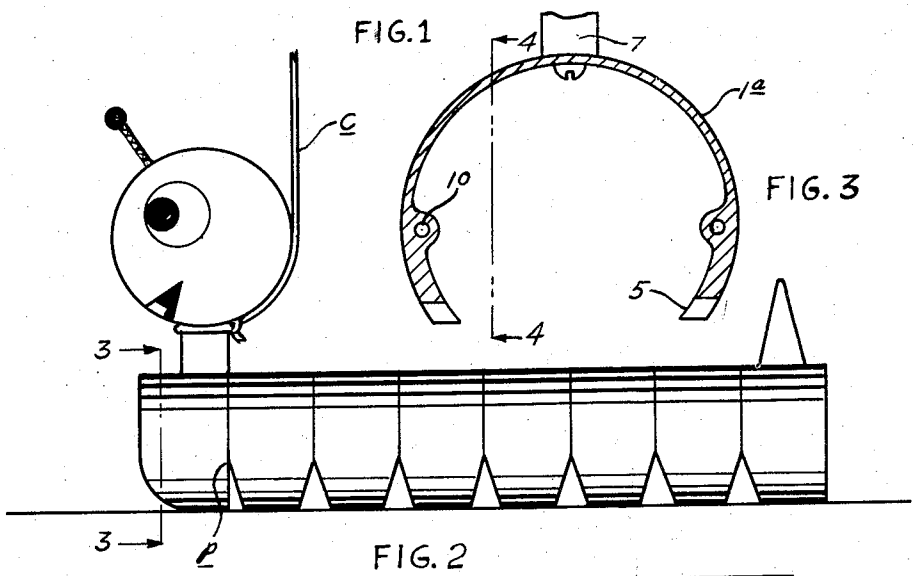


FIG. 3

FIG. 2

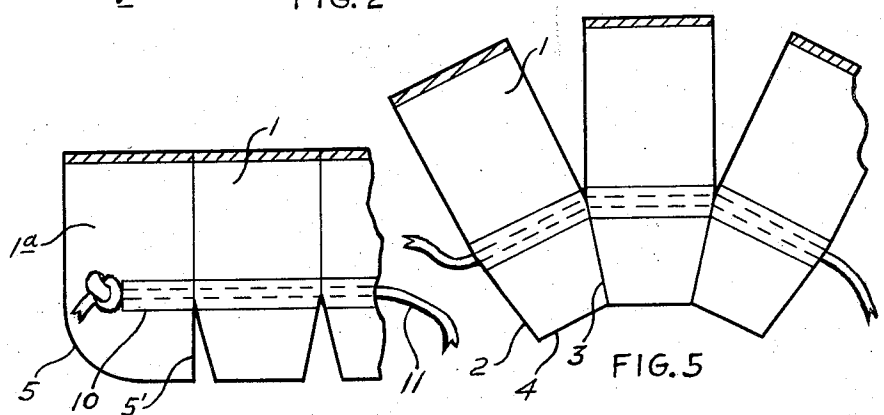


FIG. 4

FIG. 5

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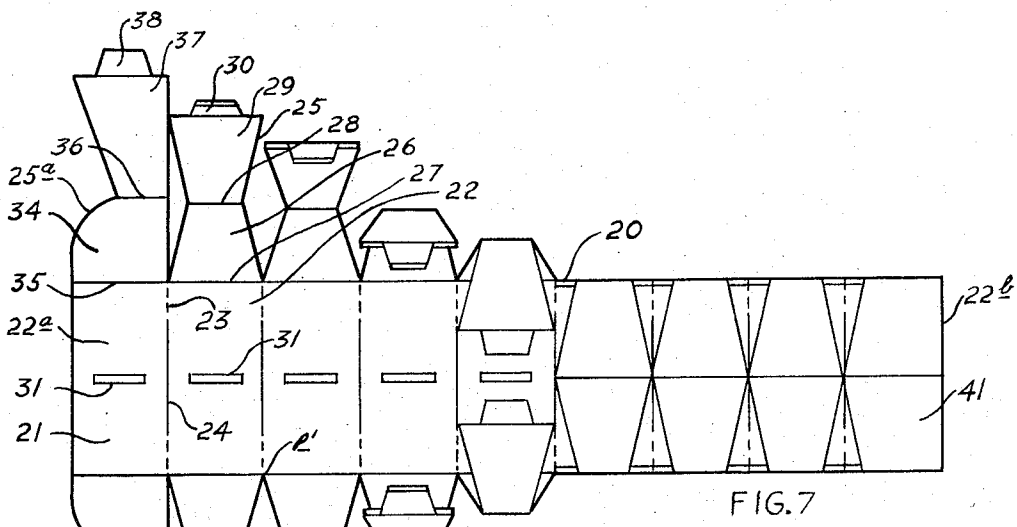


FIG. 7

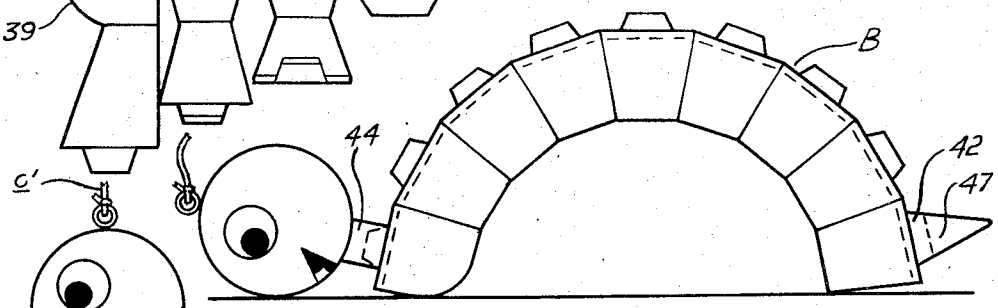


FIG. 8

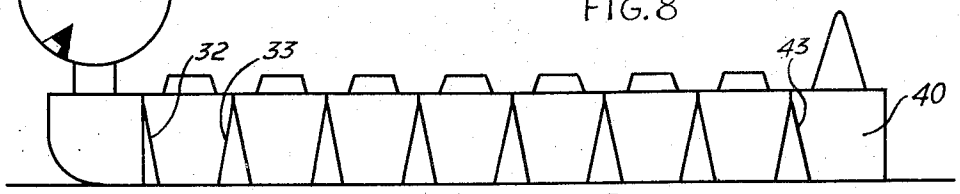


FIG. 9

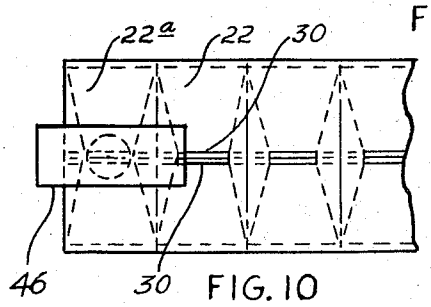


FIG. 10

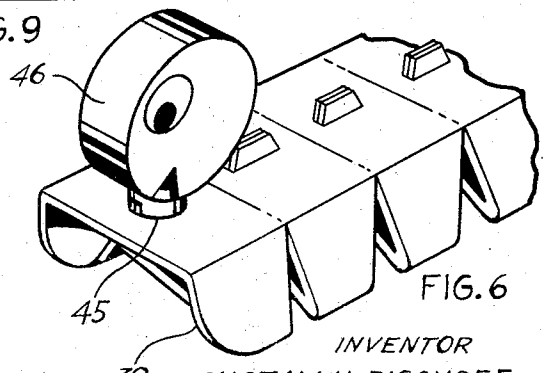


FIG. 6

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2,853,831

Patented Sept. 30, 1958

2,853,831

TOY WORM

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Application June 4, 1956, Serial No. 589,147

6 Claims. (Cl. 46—123)

This invention relates in general to amusement devices and, more particularly, to a toy adapted for crawling movement simulative of the natural movements in locomotion of a worm, caterpillar, or the like.

It is an object of the present invention to provide a jointed toy adapted to be alternatingly arched or humped and straightened out during traverse of a support surface through reciprocal operation of a weighted member.

It is another object of the present invention to provide a toy which comprises a marked simplicity of parts, not incorporating motor means and attendant motion transmitting elements as have heretofore unfailingly constituted requisite components of crawling type toys, whereby the present toy can be most economically manufactured, is sturdy and durable in construction, and will operate reliably throughout extended usage.

It is a further object of the present invention to provide a toy of the type described which is adapted for facile assembly from cardboard or the like by unskilled individuals, as children.

These and other detailed objects are obtained by the structures illustrated in the accompanying drawing, in which—

Figure 1 is a side view of a toy constructed in accordance with and embodying the present invention, illustrating the same in arched position.

Figure 2 is a side view showing the toy in elongated or straightened out position.

Figure 3 is a vertical transverse section taken on the line 3—3 of Figure 2.

Figure 4 is a fragmentary vertical transverse section taken substantially on the line 4—4 of Figure 3.

Figure 5 is a fragmentary vertical section showing adjacent segments in arch-forming relationship.

Figure 6 is a fragmentary perspective view of another form of the present invention.

Figure 7 is a bottom plan view of a blank in partially assembled condition for making the form of the present invention shown in Figure 6.

Figure 8 is a side view in arched condition of the toy shown in Figure 6.

Figure 9 is a side view in elongated condition of such other form of the present invention.

Figure 10 is a fragmentary top plan view of the other form of the present invention.

Referring now by reference characters to the drawings and, more particularly, to Figures 1 to 5 inclusive thereof which illustrate one embodiment of the invention, A designates a toy generally simulative of a worm which comprises a body section formed of a plurality of articulated segments 1, with the front or forwardmost and the rearwardmost being respectively indicated 1*a* and 1*b*, each of which is, preferably, transversely arcuated, with its rounded surface presented upwardly and being open at the bottom, having the same peripheral extent and being formed upon the same radius. Said segments are normally presented in axially aligned relationship so that when toy A is in one position (see Figure 2), said

segments will be mutually disposed so as to form an elongated, dorsally rounded body.

Each segment 1 is in its central portion of constant width and in both its lower end portions is tapered or inclined inwardly and downwardly along its opposite side edges as at 2, 3, terminating in a base 4 which will, perforce, be of relatively reduced width. Thus, when segments 1 are in axially aligned relationship, presenting toy A in straightened out position, the central portions of each segment will abut edgewise against the central portions of adjacent segments while the tapered, lower edges thereof will be in diverging relationship to the corresponding edges of adjacent segments. Front end segment 1*a* in its forward lower edge portion is curved to provide a rocker-forming surface 5, with its rearward, lower side edge 5' being untapered or planar-wise continuous with the central portion rearward edge. Rearward segment 1*b* is tapered inwardly and downwardly in its lower front edge portion, as at 6, while its rearward side edge 6' is in planar alignment with the rearward edge of the related central portion. Secured by suitable means, such as by a screw or the like, on the upper, central portion surface of front segment 1*a*, proximate the rearward side edge thereof, is an upstanding stem or neck-simulative member 7, on the upper end of which is mounted a weighted, head-simulative member 8, which is relatively heavy with respect to front segment 1*a*, for purposes presently appearing. Mounted, as by any suitable means, such as an adhesive, or the like, on the upwardly presented surface of the central portion of rearward segment 1*b*, is a rigid, tail-simulative member 9.

Segments 1, 1*a*, and 1*b*, are secured to the adjacent segments in a hinged manner so as to endow toy A with the jointed or articulate character requisite for realistic simulation of the travel motions of a worm. It is to be recognized that the means for effecting pivotal connection between such segments may be of any well known type, with such means being so disposed as to effect the desired swinging about the pivot point located at the juncture between the central portions of such segments and their tapered, lower ends, as indicated at *p* in the drawing. Thus, each segment will be balancingly hinged at two, corresponding points for uniform swinging movement.

Since it has been considered preferable, for economic and durability considerations, to fabricate toy A from a thermoplastic, the hinged construction herein shown and to be now described has been found amenable to simplicity in assembly, but as stated above, is not to be deemed exclusive. Each segment 1, 1*a*, and 1*b* has integrally formed on its inner surface a tubular passage or sleeve 10, open at both ends, extending widthwise thereof, parallel to the axis of such segments, on a line passing through the points *p*, so that such passage is provided on each side of said segments.

When toy A is in elongated position, passages 10 on each side thereof will be aligned. Provided for threaded disposition through each set of aligned passages 10 is a connecting member 11, such as a section of string, or the like, with its projecting ends fixed, as by knotting or direct securement to segments 1*a*, 1*b*, to prevent accidental dislodgement. Said connecting members 11 serve to unite the constituent segments into an integrated unit as well as permit the mutual pivotal action of the segments.

Head 8 through gravity will be biased into downwardly swung position, as shown in Figure 1.

In operation, a cord *c* or other control member is suitably secured to toy A, such as by tying about the neck-simulative member 7, and by upward pulling thereof the operator will cause head 8 to be presented in upwardly

or erect position, with segments **1**, **1***a*, **1***b* being thereby disposed in axially aligned relationship wherein the same will abut upon the forward and rearward edges of their central portions (see Figures 2 and 4). Hence, toy A will then be in elongated or straightened out position. Upon the user's releasing control member *c*, head **8**, through gravity, will swing downwardly and forwardly, thereby causing front segment **1***a* to be rocked forwardly and downwardly along rocker surface **5** to present its forward edge in substantial engagement upon the support surface. Such rocking of front section **1***a* will cause a progressive pivoting movement of the succeeding segments about their points *p* whereby the tapered edges **2**, **3** of each segment will be brought into abutment against the confronting edges of the adjacent segments, with the central portions thereof being removed from mutual contact (see Figures 1 and 5), resulting in arch forming relation of the segments so that toy A will be in humped position. This movement is hence a series of successive pivotal actions brought about by the articulation between the segments, with the rearward segment **1***b*, through the weight of tail **9**, being dropped downwardly on its rearward edge and serving thereby as an anchor. The degree of taper of the lower portions of the segments will determine the extent of pivotal movement into arched position; it being recognized that such angle or degree will depend upon the number of segments incorporated and the character of the arch desired. Thus, the downward movement of head **8** will cause the forward end of the body to be swung downwardly upon the support surface with consequent raising of the middle portion of the body and the dropping of the rearward portion.

The user will then pull upwardly on the head **8** causing front segment **1***a* to be returningly rocked on its rocker surface **5** into upright position, which will cause toy A to be restored to elongated condition, as the segments are thereby forced to be reversingly swung about their pivot points *p*, returning the central portions to edgewise abutment and effecting separation of the tapered, lower portions.

Since rearward segment **1***b* is in anchored position, it will prevent undesired backward movement of toy A as the same moves into straightened out condition. Hence, the user in pulling upwardly on control member *c* will also pull slightly forward to provide a forward component of travel to thereby enhance the air of realism created by operation of toy A. The user by alternatingly repeating the raising and lowering of head **8**, through manipulation of control member *c*, will cause the imparting to toy A of a crawling or creeping locomotion common to many species of worms.

Referring now to Figures 6 to 10 inclusive of the drawing, B designates another form of the present invention which is adapted for ready assembly as from essentially a foldable blank of cardboard or other like bendable material. Thus, the toy of this invention may thereby comprise an additional educational value in that its facile assembly will provide constructive play.

In this embodiment the body portion is formed from a unitary blank **20**, as of cardboard or like bendable material, having an elongated rectangular main portion **21**, which is divided into a series of rectangular sections **22** by spaced transversely extending scored lines **23**, the latter being centrally kerfed or slit, as at **24**, for purposes presently appearing. Laterally projecting from each side edge of each section **22** is an extension **25** comprising an inner leg portion **26** defined by normally parallel lines for folding **27**, **28**, as indicated by printing or otherwise, and an outer brace portion **29**; there being a tab **30** provided at the end edge of said brace portion **29** for reception within a slot **31** provided centrally of the related section **22** when toy B is assembled. Slots **31** of sections **22** are aligned and extend axially of rectangular main portion **21**.

To form or assemble the body of toy B leg portions **26** are turned downwardly with respect to their associated sections **22** along fold lines **27** and the respective brace portions **29** are turned upwardly and inwardly along fold lines **28** to present tabs **30** for projection through slots **31**; said tabs **30** being bent along the outer edges of the associated brace portions **29** for upward, locked extension through slots **31** to thereby secure the respective legs **26** in operative position. Since each section **22** is symmetrical having a pair of identical extensions **25**, the related tabs **30** will be received in snug, surface-abutment within the related slots **31** for assuring reliable maintenance of the associated legs **26** in body-supporting position. It will thus be seen that sections **22** together with their related leg portions **26** thus constitute segment forming units whereby the body of toy B will simulate that of a worm, although due to the particular folding procedure, the dorsal portions will necessarily be flat.

The leg portions **26** of sections **22**, except the forward and rearwardmost sections, designated **22***a* and **22***b*, respectively, are tapered downwardly and inwardly, as considered when in operative position, along their edges, as at **32**, **33**, whereby fold lines **28** will provide feet or bases of relatively reduced width. Forwardmost section **22***a* is provided with lateral extensions **25***a* comprising an inner leg portion **34** defined by parallel lines of folding **35**, **36** and an outer brace portion **37**, with a tab **38** provided on its outer end edge. Leg portions **34** on their normally forwardly presented edge are arcuated to present a rocker-forming surface **39** with their rearward edges being continuous with the rearward margin of section **22***a*. Rearward section **22***b* is likewise provided with lateral extensions having an inner leg portion **40** and an outer brace portion **41**, there being a tab **42** formed on the outer end edge of each brace portion **41**. Leg portions **40** are tapered inwardly and downwardly on their forward edges as at **43**, while the rearwardmost edges are continuous with the adjacent rearward edge of the related section **22***b*. In view of the foregoing, it may be noted that sections **22***a* and **22***b*, together with their associated portions structurally correspond to segments **1***a* and **1***b* above described in connection with toy A.

An unskilled individual, such as a child, could readily form blank **20** into the body of toy B by merely folding along the indicated lines and extending the various tabs through the openings in the related sections.

Also, provided for completing the worm simulating appearance of toy B is a stem or neck simulative member **44**, which may be of wood or the like, having a transverse slot **45** in its lower end for receiving the projecting ends of the adjacent tabs **38**, for ready securement thereto, as by any suitable adhesive. Carried on the upper end of stem **44** is a head-simulative member **46** fabricated, preferably, of wood or the like, and hence being relatively heavy with respect to the body of toy B. Provided for suitable securement upon the projecting tabs **42** of the brace portions **41** of the rearwardmost section **22***b* is a tail-simulative member **47**, which may also be fabricated of wood or of any other relatively heavy material.

It will be seen that toy B can be readily assembled by the use of a limited amount of glue or other adhesive, with the necessary folding and tab-insertion being easily accomplished, and yet permitting a child substantial constructive play.

In use, toy B is operated in the same manner as toy A above described, there being a cord or other control member *c'* secured to head **46** as through an eyelet, so that the raising and lowering of same may be readily achieved. Upon releasing of cord *c'* head **46** will, through gravity, drop downwardly with the rocking of forward section **22***a* and the successive pivotal movement of the succeeding segment-forming units **22**; it being noted that the pivot points will be located at the ends of fold lines **27**, at the juncture of the leg portions and the

adjacent sections **22**, as at *p'*. With toy *b* being disposed in arched position (as shown in Figure 8) the various sections **22***a*, **22**, and **22***b*, will be slightly parted from each other along kerfs **24** which will be normally closed when toy B is in straightened out or elongated condition.

Hence, the present invention is readily adaptable for presentation in various types of materials of construction so that the same may either be presented a user in fully formed and operatively ready condition or may be provided in form for facile assembly. Toys of the type herein described may be most economically manufactured, as the same do not incorporate complicated, readily breakable mechanical parts, such as spring motors with attendant links, gears, and the like, as have been customarily utilized in crawling toys heretofore. The present invention constitutes a unique arrangement of simple constituents for providing a highly realistic and intriguing action which may be easily brought about without skill on the part of the user. With its inherent simplicity of parts, toys of this invention are durable and wholly reliable in operation.

It should be understood that changes and modifications in the formation, construction, arrangement, and combination of the several parts of the toy worm may be made and substituted for these herein shown and described without departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A toy animal comprising a body having a forward end segment, a rearward end segment, and a plurality of intermediate segments, said segments being in normally upright, aligned relationship, each segment being formed of sheet material and of generally arcuate configuration and comprising a central, back-forming portion having forward and rearward edges and a leg portion extending downwardly from each side of said central portion, said legs having forward side, rearward side and base edge surfaces, each segment further being pivotally connected to each immediately adjacent segment for hingedly engaging same along their confronting side edge surfaces, a weighted, head-simulative member mounted upon the back-forming portion of the forward end segment and being forwardly and downwardly gravity-biased thereby urging said forward end segment downwardly upon its forward edge, a weighted, tail-simulative member mounted upon the central, back-forming portion of the rearward end segment for urging through gravity the latter downwardly and rearwardly on its rearward margin whereby the intermediate segments will be biased into hump-forming relationship, and means for effecting upward pulling upon the head-simulative member for effecting return rocking of the forward end segment into upright position permitting relative pivotal action of the other segments into elongated aligned relationship.

2. A toy animal as described in claim 1 wherein a pair of elongated, flexible connecting members join the segments together, and the legs of the intermediate segments are downwardly and inwardly tapered on their forward and rearward edges whereby clearance is provided for mutual pivotal movement of said segments into hump-forming relationship under bias of said weighted head and tail-simulative members.

3. A toy animal as described in claim 1 wherein the forward end segment is arcuated on its lower forward edge portion to define a rocker-forming surface to permit rocking movement of said forward end segment between downward position under bias of the head-simulative member and upright position.

4. A toy animal as described in claim 2 wherein the connecting members join the segments together at a point immediately above the taper of said leg portions of the intermediate segments and wherein said segments when in upright, axially aligned relationship will abut the adjacent segments on the confronting edge portions extending between the legs thereof, and whereby when said segments are in hump-forming relationship the edge portions between their respective legs will be spaced apart.

5. A toy animal as described in claim 1 wherein each segment is transversely arcuate with its open or bight portion presenting downwardly whereby to present a composite, dorsally rounded body, each segment having on its inner surface an aligned passage on each of its sides downwardly from its upper extremity, and a flexible, elongated connecting member extending through each aligned series of passages for joining said segments together, each connector member terminating inwardly of the outer end edges of the forward and rearward segments.

6. A toy animal or the like comprising a body formed from an integral, bendable blank, said blank having a rectangular main section divided into transverse sections by a series of spaced, scored lines, a lateral extension projecting from opposite side edges of each transverse section for bending downwardly therefrom in axially normal relationship thereto, and comprising a leg portion and a brace portion, said latter having a tab delineated by lines for folding, said brace portions being upwardly bendable beneath said sections, inwardly of the related leg portions, each section being provided with an opening for lockingly receiving the tabs of its related lateral extensions for maintaining the associated braces in leg-rigidifying position, each leg portion being downwardly and inwardly tapered on its opposite side edges, a relative heavy, head-simulative member on the forward end transverse section, being forwardly and downwardly gravity-biased thereby urging said forward end transverse section downwardly upon its forward edge, a weighted, tail-simulative member mounted upon the central portion of the rearward end transverse sections for urging, through gravity, the latter downwardly and rearwardly upon its rearward margin whereby the intervening sections will be biased into hump-forming relationship and means for effecting upward pulling upon the head-simulative member for effecting return rocking of the forward end section into upright position permitting relative pivotal action of the other sections into elongated aligned relationship.

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