

June 28, 1960

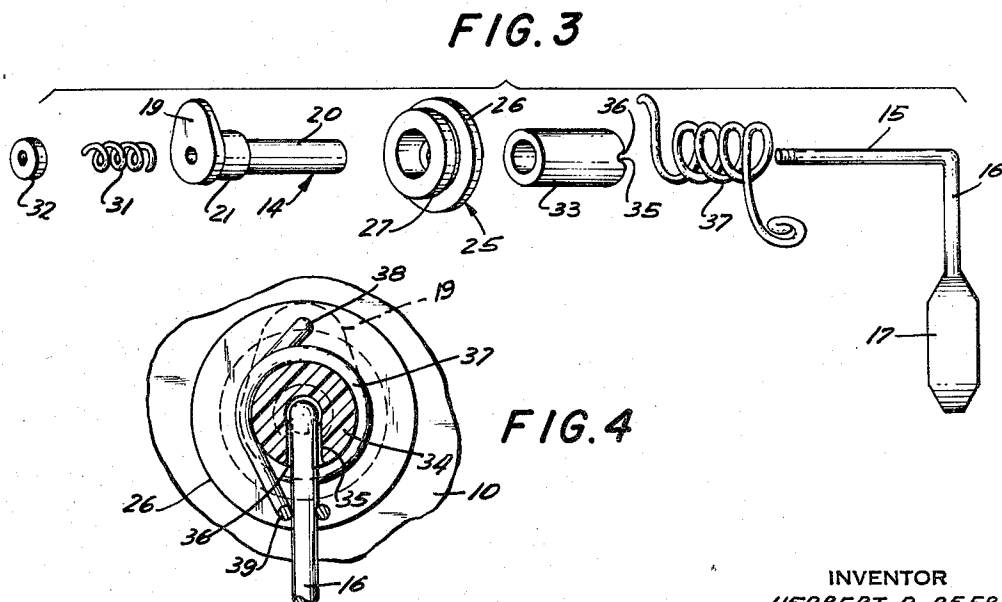
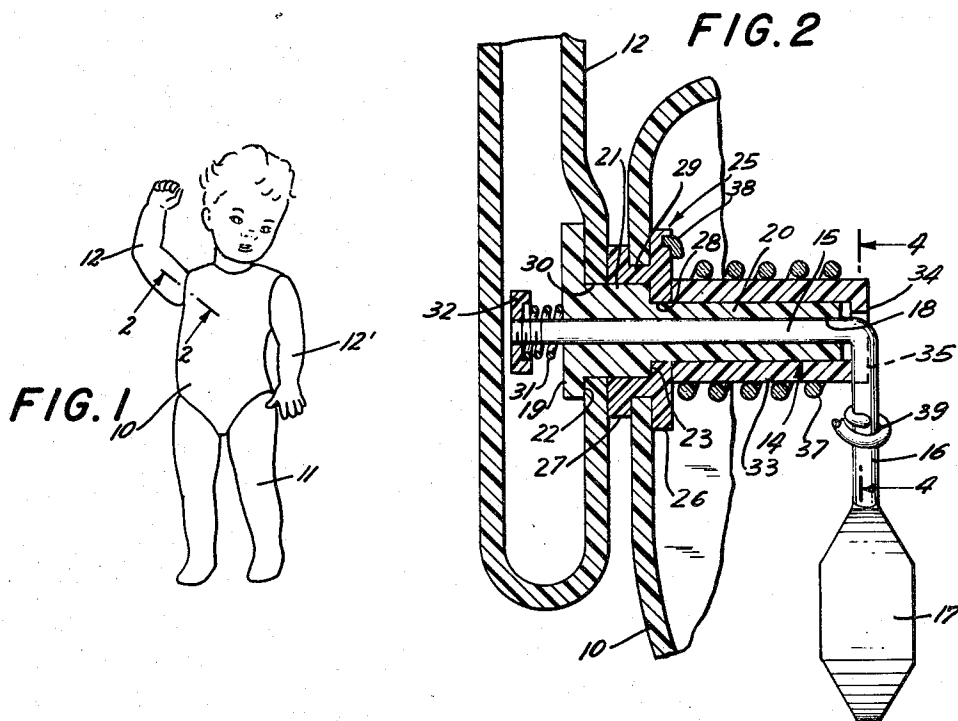
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2,942,377

DOLL WITH NOVEL ARM MOVEMENT

Filed May 14, 1958

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

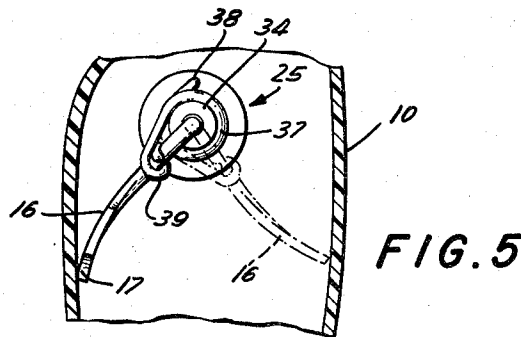


FIG. 5

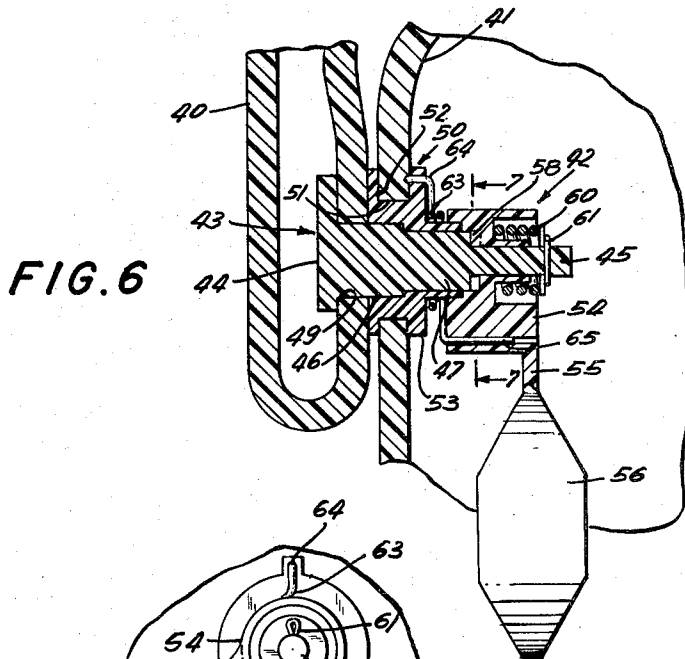


FIG. 6

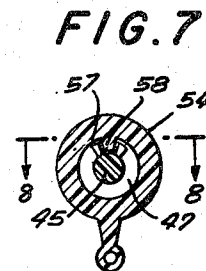


FIG. 7

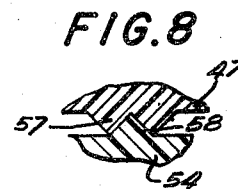


FIG. 8

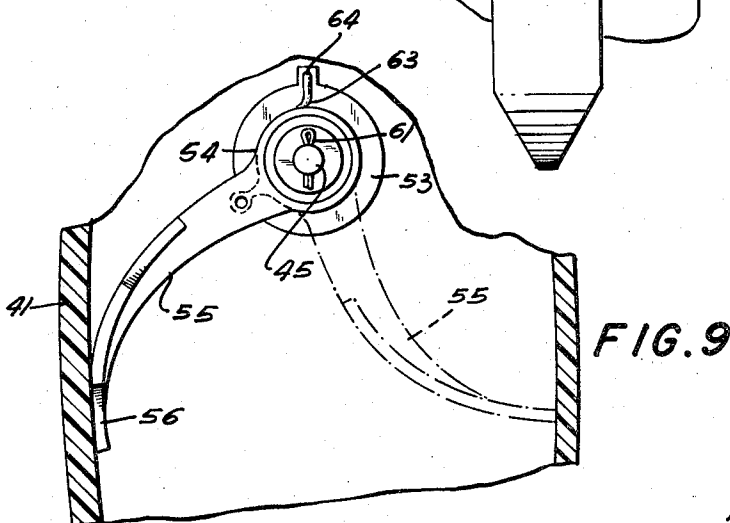


FIG. 9

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1

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DOLL WITH NOVEL ARM MOVEMENT

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6 Claims. (Cl. 46—119)

This invention relates to a doll and has particular reference to a doll having manually operated means for producing a novel arm movement.

An object of the invention is to provide a doll having an articulated arm and with means arranged in the doll body which is connected with the arm for imparting movement to the arm by pressing the doll body.

A feature of the invention relates to the arrangement of one of the arms of the doll for pivotal movement from depending relation to upwardly directed relation and with means associated therewith for moving the arm from the upwardly directed relation to a forwardly directed position by pressing the doll body. The arrangement is such that the arm will automatically return to the upwardly directed relation upon the release of the pressure on the doll body.

Another object of the invention is the provision of a doll of said character which may be manipulated by a child to provide an amusing effect of motion of one of the arms of the doll simulating waving of the arm or bye-bye.

The invention further resides in the provision of means by which the arm may be released for movement thereof to any desired position.

With the foregoing and other objects in view, reference is now made to the following specification and accompanying drawings in which the preferred embodiment of the invention is illustrated.

In the drawings:

Fig. 1 is a doll constructed in accordance with the invention for moving an arm thereof by pressing the doll body.

Fig. 2 is an enlarged sectional view taken approximately on line 2—2 of Fig. 1.

Fig. 3 is a perspective view of the operating parts for moving the arm shown in separated juxtaposition.

Fig. 4 is a sectional view taken approximately on line 4—4 of Fig. 2.

Fig. 5 is a fragmentary sectional view taken medially through the doll body showing the inner end of the means connecting one of the arms with the doll body.

Fig. 6 is a fragmentary vertical sectional view of a modified form of means connecting one of the arms therewith constructed in accordance with the invention.

Fig. 7 is a fragmentary sectional view taken approximately on line 7—7 of Fig. 6.

Fig. 8 is a fragmentary sectional view taken approximately on line 8—8 of Fig. 7.

Fig. 9 is a fragmentary sectional view taken medially through the doll body showing the inner end of the means connecting the arm with the doll body.

Referring to the drawings, the invention is illustrated in its application to a doll having an arm and means connected therewith for imparting swinging movement thereto from upwardly directed relation to an outwardly directed position by pressing the body of the doll but it is to be understood that the movement may be from outwardly directed relation to depending relation or any in-

2

termediate relation through a movement of approximately 90 degrees. The means operable by pressing the doll body for effecting the aforesaid movement of the arm also functions on the release of the pressure on the doll body to automatically return the arm to the original position.

In the embodiment illustrated, the doll comprises a doll body 10 having legs 11 and arms 12 and 12' connected with the body for swinging movement. The body 10 is made of any desired resilient material which permits of the flexing of the walls thereof and the return of the wall to the original form. One of the arms, such as the arm 12, is pivotally connected with the body 10 by means 13 which effects movement thereof by pressing the forward wall of the body. The said arm is of hollow formation in the region of the pivotal connection thereof with the body 10 and the arm is affixed to the outer end of a sleeve 14 through which extends a shaft 15 provided with a downturned end 16 having an enlarged extremity 17. The shaft 15 is mounted for turning movement in the bore 18 of the sleeve. The sleeve is formed with an enlarged outer end 19, a reduced cylindrical inner end portion 20 and an intermediate cylindrical portion 21 joining the enlarged outer end with the reduced inner end portion 20 so as to form annular shoulders 22 and 23.

The sleeve 14 is rotatably mounted in the central bore of an annular member 25 having inner and outer flanges 26 and 27 which are disposed in parallel relation and with the inner flange projecting radially beyond the outer flange 27 and also extending radially inward to provide an inwardly directed rim 28. The annular member 25 snugly fits a circular opening 29 in the side wall of the doll body 10 with the wall portion surrounding said opening extending inwardly between the flanges 26 and 27 and snugly seats on the wall between the flanges so as to retain the annular member against rotation. The sleeve is rotatable with reference to the annular member 25 which functions to retain the sleeve in position by engagement of the inwardly directed rim 28 against the shoulder 23 of said sleeve.

The intermediate cylindrical portion 21 of the sleeve protrudes through an opening 30 in the wall of the arm 12 as shown in Fig. 2 of the drawings with the enlarged outer end 19 of the sleeve abutting against the inside face thereof surrounding the opening 30. The wall surrounding the opening 30 of the arm snugly fits the intermediate cylindrical portion 21 of the sleeve and engages against the annular shoulder 22 whereby the arm moves with the sleeve 14.

In order to bias the shaft 15 axially outward, the outer end thereof is provided with a coil compression spring 31 which is disposed thereon between the enlarged outer end 19 of the sleeve and the headed outer end 32 of said shaft. Cemented or otherwise affixed to the inner end portion 20 of the sleeve is a tubular member 33 having an in-turned rim 34 which is spaced from the inner end of the sleeve 14 and is formed with a notch 35 having cam edges 36 in which notch the downturned inner end 16 of the shaft is normally disposed by the bias of the spring 31. A torsion spring 37 surrounds the tubular member 33 with one end of the spring anchored in the flange 26 as at 38 and the outer end of the spring looped about the downturned inner end of the shaft 15 as at 39 to thereby normally retain the extremity 17 of the shaft against the forward wall of the doll body 10.

The arm 12 may be arranged on the sleeve 14 in any desired position for movement through an angle of approximately 90 degrees by inward pressure applied against the forward wall of the doll body 10. As illustrated, the arm 12 is disposed in upwardly extending relation with the downturned inner end portion 16 of the shaft positioned against the forward wall of the doll body 10. It follows that by pressing the forward wall of the doll body

3

inwardly so as to engage and swing the downturned inner end 16 of the shaft rearwardly, the shaft will be rotated to turn the sleeve 14 and thereby the arm 12 into forwardly directed relation. This functions also to tension the spring 37 whereby the shaft 15 together with the sleeve 14 and the tubular member 33 will be returned to their normal position to effect the return of the arm to the upwardly extending relation as shown in Fig. 1 of the drawings.

It will be understood that so long as the inner end portion 16 of the shaft 15 is in the notch 35, the arm 12 will move with the movement of the shaft. However, the sleeve 14 may be released from notched engagement with the inner end portion 16 of the shaft by turning the arm so as to cam the inner end portion 16 out of the notch. This permits of relative movement of the arm 12 with reference to the shaft 15 whereby the arm may be moved to any desired position independently of the means 13.

In assembling the means 13 with the arm 12 and the doll body 10, the annular member 25 is first positioned in the opening 29 of the doll body by flexing the wall surrounding the opening. The shaft 15 is then positioned in the bore of the sleeve 14 and the compression spring 31 arranged on the protruding end of the shaft and the headed outer end 32 threadedly secured thereon. The sleeve 14 is then inserted in the bore of the annular member 25 with the inner end 20 projecting into the doll body. The tubular member 33 is then cemented or otherwise affixed to the inner end portion 20 and the torsion spring 35 is arranged on the tubular member 33 and secured to the flange 26 and the downturned inner end 16 of the shaft 15. The arm 12 is then affixed to the enlarged outer end of the sleeve which may be readily inserted through the opening 30 of the arm by flexing the wall surrounding the opening.

In the form of the invention illustrated in Figs. 6 to 8 of the drawings, the arm 40 of a doll body 41 is similarly arranged for movement through an angle of approximately 90 degrees by pressing the doll body so as to actuate means 42. The means 42 functions to return the arm to the original position when the pressure on the doll body is released. In the embodiment illustrated, the arm 40 is mounted on the outer end of a shaft 43 consisting of an enlarged outer end 44, a reduced inner end portion 45 and intermediate portions 46 and 47 connected between the outer end 44 and the reduced inner end portion 45. In this form, the shaft 43 is employed in place of the shaft 15 and the sleeve 14 in the previous form of the invention.

The arm 40 is affixed to the said shaft 43 with the intermediate portion 46 extending through an opening 49 in the wall of the arm and with the enlarged outer end 44 positioned against the inside surface of the wall surrounding the opening 49 for rotation of the arm with the shaft.

The shaft 43 is rotatably mounted in the central bore of an annular member 50 which slideably fits the intermediate portions 46 and 47 of the shaft and is arranged in an opening 51 in the wall of the doll body 41 with the inner and outer flanges 52 and 53 disposed against the inner and outer faces of the wall adjacent the opening 51 so as to retain the annular member 50 against rotation. Slideably fitting the inner end portion 45 of the shaft 43 is a tubular member 54 having a downwardly directed arm 55 provided with an enlarged extremity 56 similar to the inner end portion of the shaft 14 in the previous form of the invention. The shaft 43 is rotatable with reference to the tubular member 54 and interengageable means is provided on the shaft and tubular member for effecting movement of the shaft with swinging movement of the arm 40 by pressure applied to the body of the doll. The aforesaid means consists of ratchet teeth 57 and a projection 58 respectively provided on the shoulder of the intermediate portion 47 of the shaft 43 and the side of the tubular member 54. In order to bias

4

the interengageable means into engagement, a compression spring 60 is arranged on the inner end of the shaft 43 which is secured thereon by an apertured disc and cotter pin 61 with the opposite end of the spring affixed to the tubular member 54. This permits of the movement of the projection 58 out of engagement with the ratchet teeth 57 so as to free the shaft 43 for swinging movement of the shaft 43 and arm 40 with reference to the tubular member 54. The enlarged extremity 56 of the tubular member 54 is disposed in biased engagement against the inner surface of the doll body by a torsion spring 63 anchored at its ends in the flange 52 and tubular member 54 respectively as at 64 and 65.

The parts of this form of the invention are assembled by first positioning the annular member 50 in the opening 51 in the wall of the doll body which tightly fits the opening and is retained in position therein. The arm 40 is then affixed to the outer end of the shaft 43 after which the shaft 43 is positioned in the bore of the annular member 50. The torsion spring 63 is then disposed on the inner end of the annular member 50. The tubular member 54 is then positioned on the inner end of the shaft after which the compression spring 60 is arranged on the inner end of the tubular member 54 and the parts secured in assembled relation by inserting the cotter pin 61 in the opening in the end 45 of the shaft with the washer positioned against the compression spring.

It will be understood that when the projection 58 is in engagement with the teeth 57, the arm 40 will move with the movement of the shaft 43 and the tubular member 54, the shaft 43 and tubular member 54 being coupled by the interengagement of the teeth 57 and projection 58. Thus, by inward pressure applied against the body of the doll so as to move the arm 55 to the dotted position shown in Fig. 9 of the drawings, the shaft 43 will be turned to swing the arm 40 of the doll from a vertical position to a substantially horizontal position to thereby simulate waving of the doll's arm. The projection 58 of the tubular member 54 may be moved out of engagement with the teeth 57 of the shaft 43 to permit of relative movement of the arm and shaft with reference to the tubular member 54.

While the preferred forms of the invention have been shown and described herein, it is to be understood that the same are not so limited but shall cover and include any and all modifications of the invention which fall within the purview thereof.

What is claimed is:

1. In a doll, a doll body including a hollow resilient torso having an opening in the wall thereof, a tubular element arranged in said opening and having a shoulder on the inner periphery thereof, an arm, a first member affixed to said arm extending through said element on a lateral axis in engagement with said shoulder and rotatable with reference to said element so as to constitute a shaft for turning said arm, a second member rotatably carried by said first member and having an angularly disposed inner end, said first and second members having interengageable means releasably connecting the same together for movement of said arm with the movement of said second member, and means normally biasing said angularly disposed end into engagement with the forward wall of the torso, said angularly disposed end being adapted to be swung rearwardly by pressure exerted against the forward wall of the torso to thereby turn said first member and swing said arm about said axis against the bias of said biasing means, and said biasing means moving said angularly disposed end forwardly and swinging said arm to its former position when the pressure on the torso is released, said arm being adapted to be turned to move said first and second members out of connected engagement to permit of movement of said arm independently of said second member.

2. In a doll, a doll body including a hollow resilient torso having an opening in the wall thereof, a tubular

5

element arranged in said opening, an arm, a first member affixed to said arm extending through said element on a lateral axis and rotatable with reference to said element so as to constitute a shaft for turning said arm, a second member rotatably carried by said first member and having an angularly disposed inner end, said first and second members having interengageable means releasably connecting the same together for movement of said arm with the movement of said second member, means normally biasing said angularly disposed end into engagement with the forward wall of the torso, said angularly disposed end being adapted to be swung rearwardly by pressure exerted against the forward wall of the torso to thereby turn said first member and swing said arm about said axis against the bias of said biasing means, and said biasing means moving said angularly disposed end forwardly and swinging said arm to its former position when the pressure on the torso is released, and means biasing said first and second members to normally maintain said interengageable means in engagement, and said arm being adapted to be turned to move said first and second members out of connected engagement to permit of movement of said arm independently of said second member.

3. In a doll, a doll body including a hollow resilient torso having an opening in the wall thereof, a tubular element arranged in said opening, an arm, a tubular sleeve affixed to said arm and rotatably mounted in said tubular element on a lateral axis so as to constitute a shaft for turning said arm, a member rotatably mounted in said sleeve and having an angularly disposed inner end, said sleeve and said last named member having interengageable means releasably connecting the same together for movement of said arm with the movement of said last mentioned member, and means biasing said angularly disposed end into engagement with the wall of the torso, said angularly disposed end being adapted to be swung inwardly by pressure exerted against the wall of the torso at the place of engagement of said angularly disposed end therewith to thereby turn said sleeve and swing said arm about said axis against the bias of said biasing means, and said biasing means moving said angularly disposed end outwardly and swinging said arm to its former position when the pressure on the torso is released, said arm being adapted to be turned to move said first and second members out of connected engagement to permit of movement of said arm independently of said second member.

4. In a doll, a doll body including a hollow resilient torso having an opening in the wall thereof, a tubular element arranged in said opening, an arm, a tubular sleeve affixed to said arm and rotatably mounted in said tubular element on a lateral axis so as to constitute a shaft for turning said arm, a member rotatably mounted in said sleeve and having an angularly disposed inner end, said sleeve and said last named member having interengageable means releasably connecting the same together for movement of said arm with the movement of said last mentioned member, means biasing said angularly disposed end into engagement with the forward wall of the torso, said angularly disposed end being adapted to be swung rearwardly by pressure exerted against the forward wall of the torso to thereby turn said sleeve and swing said arm about said axis against the bias of said biasing

6

means, said biasing means moving said angularly disposed end forwardly and swinging said arm to its former position when the pressure on the torso is released, and means biasing said sleeve and said last named member to normally maintain said engageable means in engagement, and said arm being adapted to be turned to move said sleeve out of connected engagement with said last named member to permit of movement of the arm independently of said last named member.

5. In a doll, a doll body including a hollow resilient torso having an opening in the wall thereof, a tubular element arranged in said opening, an arm, a first member affixed to said arm extending through said element on a lateral axis and rotatable with reference to said element so as to constitute a shaft for turning said arm, a second member rotatably mounted on the inner end of said first member and having an angularly disposed inner end, said first and second members having interengageable means releasably connecting the same together for movement of said arm with the movement of said second member, and means normally biasing said angularly disposed end into engagement with the forward wall of the torso, said angularly disposed end being adapted to be swung rearwardly by pressure exerted against the forward wall of the torso to thereby turn said first member and swing said arm about said axis against the bias of said biasing means, and said biasing means moving said angularly disposed end forwardly and swinging said arm to its former position when the pressure on the torso is released, said arm being adapted to be turned to move said first and second members out of connected engagement to permit of movement of said arm independently of said second member.

6. In a doll, a doll body including a hollow resilient torso having a side wall portion provided with an opening extending into the hollow interior thereof, an arm, a first member affixed to said arm extending into said recessed portion and through said opening into the interior of the doll and constituting a shaft rotatable with reference to said doll body for turning said arm, a second member rotatably carried by said first member and having an angularly disposed inner end, said first and second members having interengageable means releasably connecting the same together for movement of said arm with the movement of said second member, means normally biasing said angularly disposed inner end into engagement with the wall of the torso, said angularly disposed inner end being adapted to be swung inwardly by pressure exerted against the wall of the torso at the place of engagement of said angularly disposed inner end therewith to thereby turn said first member and swing said arm about said axis against the bias of said biasing means, and said biasing means moving said angularly disposed inner end outwardly and swinging said arm to its former position when the pressure on the torso is released, said arm being adapted to be turned to move said first and second members out of connected engagement to permit of movement of said arm independently of said second member.

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