

March 3, 1942.

J. T. HAYDEN

2,275,047

WALKING DOLL

Filed July 2, 1938

2 Sheets-Sheet 1

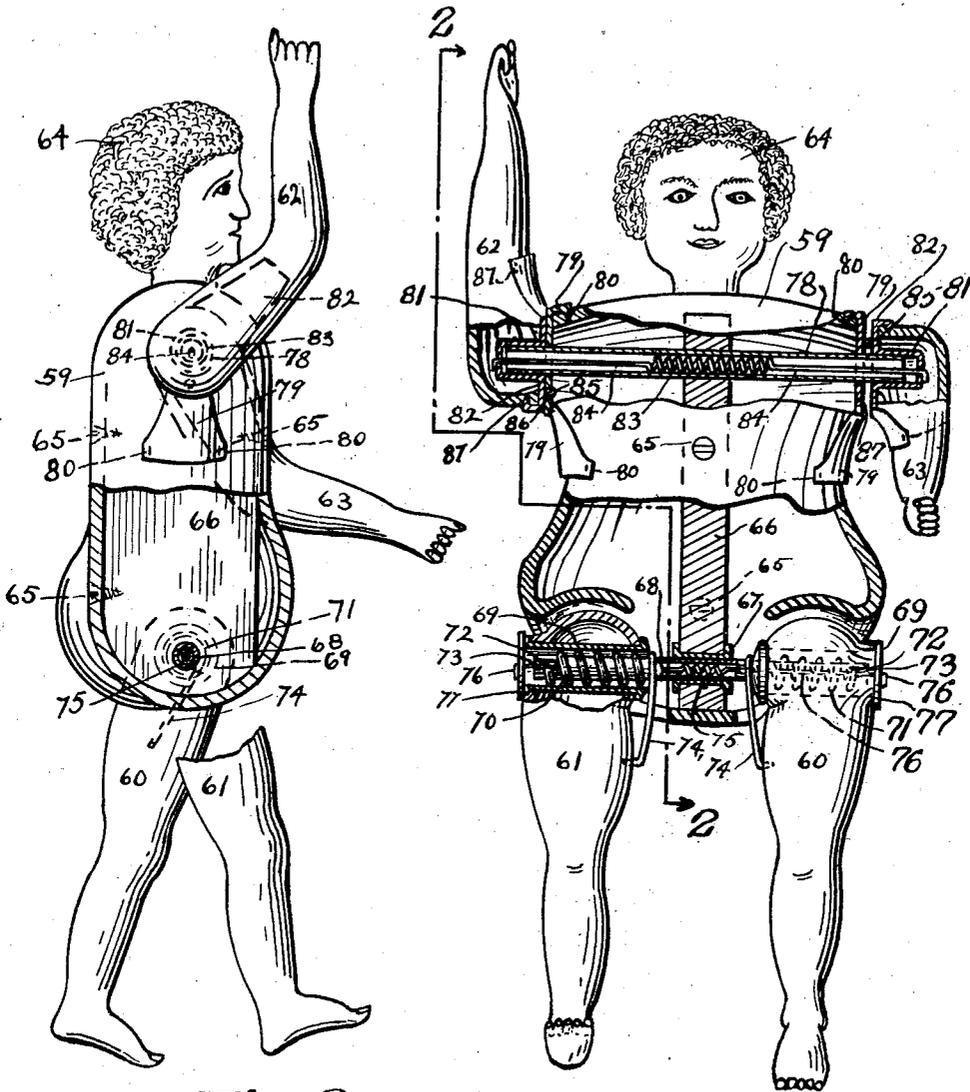


Fig. 2.

Fig. 1.

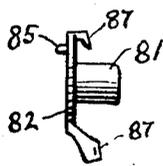


Fig. 5.

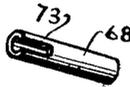


Fig. 4.

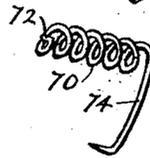


Fig. 3.

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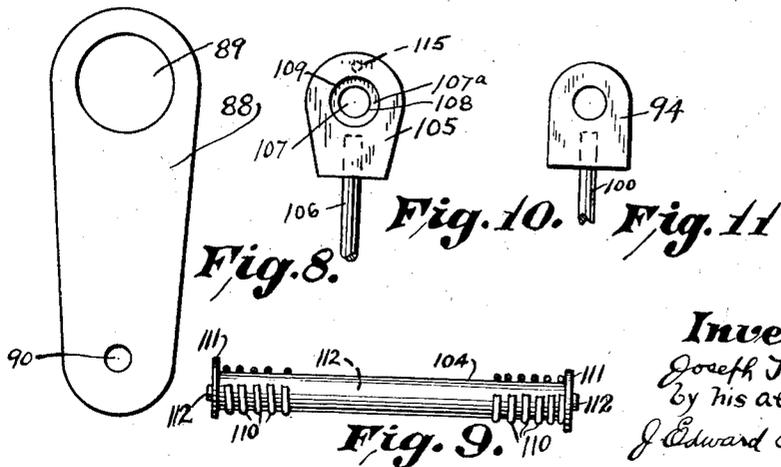
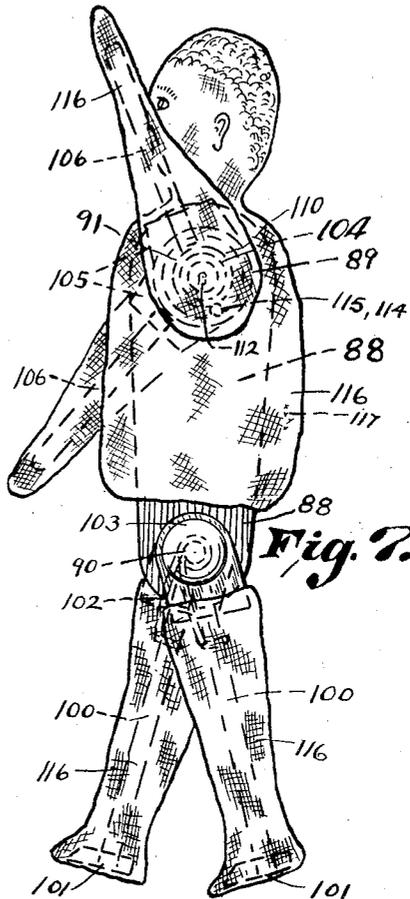
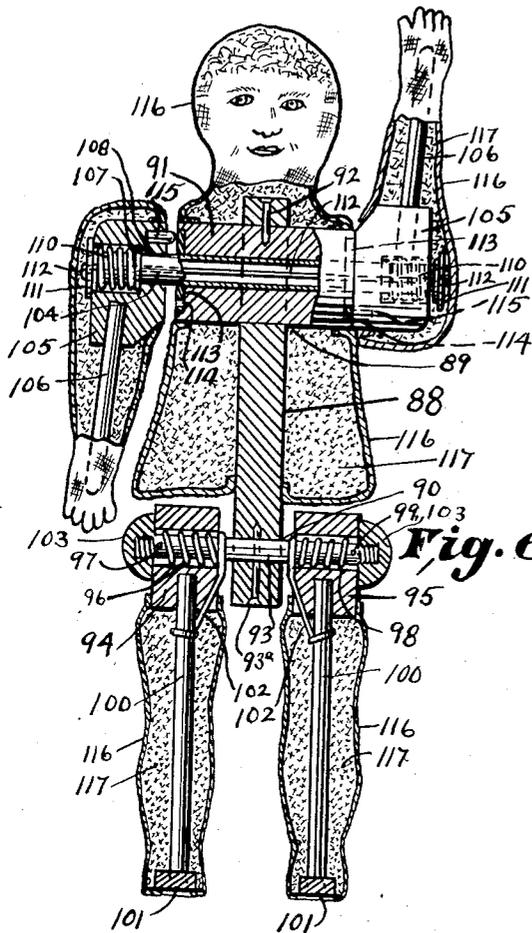
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WALKING DOLL

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2 Sheets-Sheet 2



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# UNITED STATES PATENT OFFICE

2,275,047

## WALKING DOLL

Joseph T. Hayden, Philadelphia, Pa.

Application July 2, 1938, Serial No. 217,285

5 Claims. (Cl. 46-149)

This invention relates to walking dolls.

Dolls made of paper pulp or wood fiber, as sold today, have a well formed and strong, shell-like structure, with legs and arms jointed to the body to swing in various positions, but are not adapted to be walked when held upright. It is therefore one of the objects of my invention to modify the joints of such dolls and provide means co-ordinated with the hip joints, to enable a child or an adult to walk the doll, while it is being held upright, either when the body is held or when an arm, releasably secured in an upright position, is held and the doll led stepping forward.

A further object of this invention is to provide a form of hip joint for a doll, which shall include a journaled bearing for swinging the leg on an axis, which is fixed with respect to the body, and in addition, to provide elastic means, arranged about the bearing, and at the same time being adapted to swing the leg forward when free, after the leg has, relatively to the body, been turned backward, against the action of the said elastic means.

A further object in this connection is to maintain, as near as possible, the neat appearance of the hip joint structure of the doll, such as one ordinarily sold to the trade, without this means for permitting the doll to be walked.

Another object of this invention is to provide a form of shoulder joint for a doll which shall be simple in construction and be adapted with releasable and elastic, locking means, for holding the arm in a strong enough upright position to enable one, taking hold of its hand, to support the doll in an upright position, while the doll is being walked.

A further object of this invention is to provide a doll which is adapted to be walked, when held in an upright position, having the doll made to include a skeleton frame, with a stuffed covering thereon, to simulate a rag doll, and having the shoulder and hip joints formed to adapt the doll to be held in an upright position, while being walked.

With these and other objects which will hereinafter appear, my invention resides in certain construction, various forms of which are illustrated in the drawings. These forms and their parts are described and the manner in which they function, individually and collectively, is explained and what I claim is set forth.

In the drawings,

Figure 1 is a sectional front elevation of a doll, showing incorporated therewith, forms of

shoulder and hip-joints embodying my invention.

Figure 2 is a sectional elevation taken on the line 2-2, of Figure 1.

Figure 3 is a perspective view of the coiled hip joint spring, used in connection with the doll shown in Figures 1 and 2.

Figure 4 is a perspective view of a fragmental end of the slotted tubular axle, shown in Figures 1 and 2.

Figure 5 is an edge elevation of the shoulder plate adapted to be fixed to an arm of the doll, shown in Figures 1 and 2.

Figure 6 is a sectional front elevation of a form of skeleton framed, walkable, rag doll, embodying my invention.

Figure 7 is a side elevation of a doll similar to that shown in Figure 6.

Figure 8 is an elevation showing the flat side of the main body part, of the frame, of the doll shown in Figures 6 and 7.

Figure 9 is a side elevation of the tubular shoulder axis member, of the doll shown in Figures 6 and 7.

Figure 10 is a front elevation of a shoulder bearing member of the doll shown in Figures 6 and 7.

Figure 11 is a front elevation of a hip bearing member, of the doll shown in Figures 6 and 7.

In the figures, referring particularly to Figures 1 to 5 inclusive, the body 59 has legs 60 and 61, arms 62 and 63, and head 64.

Within the body 59 is centrally fixed by screws 65, the upright cross-member 66. Fixed in the lower part of the cross-member 66 is the sleeve 67, flanged out on its ends. Passing through the sleeve 67 in tight fitting relation is the tubular shaft 68. Each of the legs 60 and 61, has a sleeve 69, positioned across the upper end of the leg. These sleeves 69 are flanged out on their ends to secure them within their legs. These sleeves 69 are adapted to be mounted in spaced concentric relation around the shaft 68, so as to have coiled springs 70 and 71 loosely surround the shaft 68, and come within the sleeves 69. Each of the springs 70 and 71, has an inturned end 72, adapted to engage one of the short longitudinal slots 73 in the ends of the tubular shaft 68. Each of the springs 70 and 71, has an extension 74 at one end thereof, and the ends of the extensions 74 are turned back to penetrate the leg which the spring 70 or 71 is connected with.

It will be observed that the spring 70, accompanying leg 61, is wound in one direction, while the spring 71, accompanying the leg 60, is wound

in the opposite direction. This is done so that as either leg is moved backward, it will partially wind up its spring, and when the leg is free to move, its spring will throw the leg forward in its action to unwind partially. To hold the legs and their respective coiled springs in place upon the shaft 68, there is provided a coiled spring 75, within the tubular shaft 68. This spring 75 has line extensions 76, passing through discs 77, and while the spring 75 is in tension, the outer ends of the extensions are bent over, thus causing the legs to be drawn toward one another. It is important that the shaft 68 is shorter than the distance between the discs 77, when the legs are somewhat spread, during a sitting position of the doll, so that the legs can be drawn closer when the doll stands upright. However, it is important that the spring ends 72 remain engaged with the slots 73, in any position of the legs.

Regarding the arm joints and connections, there is fixed across the upper part of the member 66, a tube 78 reaching outside the shoulder portions of the body 59. Body shoulder plates 79, are fixed to the body 59 by spurs 80 integral therewith. The tube 78 passes in sliding fit through holes in the plates 79. Journalled upon the ends of the tube 78 are the thimble extensions 81, integral with the arm shoulder plates 82. Within the tube 78 is the coiled spring 83, centrally positioned. Line extensions 84 pass through the thimble extensions 81, and when the spring 83 is in tension, the ends of the extensions 81 are bent over so as to draw the plates 82 toward the plates 79. Each of the plates 82 has a projecting pin 85, positioned to register with and engage a hole 86 in its co-joining plate 79, when the arm attached to the plate 82 is up. After the plates 79 and 82 are assembled with the tube 78 and the spring extensions 84, each of the arms 62 and 63 is attached to its plate 82 by spurs 87, integral with the attached plate 82.

Referring now to the form of rag doll shown in Figures 6 and 7, the skeleton frame thereof may be made of wood or other suitable material. Included in the frame is the central upright member 88, having a large hole 89, near the top and a small hole 90, near the bottom thereof. Passing through the large hole 89, across the member 88, is the round cross piece 91, secured in the member 88, by the nail 92. Passing through the small hole 90 is the bolt 93, secured therein against turning by the nail 93<sup>a</sup>. Around this bolt 93, on one side of the member 88, is positioned a leg bearing piece 94, and on the other side of the member 88, is positioned a leg bearing piece 95. Between the bearing piece 94 and the bolt 93, and freely coiled around the bolt 93, is the coiled spring 96, which has an intumed end engaging the hole 97 in the bolt 93. Similarly, between the bearing piece 95 and the bolt 93 and freely coiled around the bolt 93, is the coiled spring 98, one end of which engages the hole 99, in the bolt 93. Fixed in each bearing piece 94 and 95, and depending therefrom is a leg rod 100, terminating in a foot piece 101, to which the rod 100 is fixed. Each of the coiled springs 96 and 98 has an extension 102, the end of which is fixed to the rod 100. Each of these coiled springs is wound in a manner to be partly wound, when the leg, to which the coiled spring is attached, is moved backward, and to partly unwind, in throwing the leg forward. The ends of the bolt 93, are capped over by the nuts 103.

Referring now to the shoulders, a tube 104

passes through the cross piece 91, and has on each projecting end of said tube 104, an arm bearing piece 105, free to swing on the tube 104. This bearing piece 105, has projecting from it and fixed thereto, an arm rod 106. The bearing piece 105, has a hole 107 through it, of two diameters, so as to form a shoulder 107<sup>a</sup>. The smaller part 108 of the hole 107, loosely fits the tube 104, so that the wall of the hole part 109, is spaced from the tube 104, to admit a compression spring 110, to be positioned between the tube 104 and the bearing piece 105, while bearing against the shoulder 107<sup>a</sup>. The other end of the spring 110 bears against a disc 111, and a wire 112, passing through each disc 111, with its ends bent over holds these discs against the ends of the tube 104. In each end of the cross piece 91, is fixed a round plate 113, through which the tube 104 passes. Each plate 113 has a hole 114, and each bearing piece 105 has a pin 115, projecting toward the plate 113. The pin 115 and the hole 114 are so positioned circumferentially and relative to one another as to register and become engaged when the arm is up, thus releasably locking the arm in this position through the action of the spring 110, by forcing the bearing piece 105 against the plate 113, as the pin 115 engages the hole 114. This engagement of the pin with the hole, can be released by pulling out a little on the arm, at the shoulder, and at the same time, when so held released, turning the arm down.

The frame parts, with the leg and arm skeleton portions, are loosely covered with a fabric 116, or other suitable covering, which is stuffed with saw dust 117 or other suitable material. At the shoulder and hip joints the covering is omitted, however some kind of covering over these joints can be used, which does not interfere with their normal action.

Having above described a few forms of dolls and joints embodying my invention, I will now explain the operation thereof, and insert in place thereof the following:

Considering next the functioning of the joint parts in the action of walking the form of doll shown in Figures 1 and 2, we have here coiled springs 70 and 71, for throwing the legs forward. These coiled springs 70 and 71, encircling the tubular shaft 68, are wound in opposite directions, so that their extensions 74 come forward, over the shaft 68, and have their ends 72 engage the respective end slots 73, of the shaft 68, so that, being so anchored to the shaft 68, but slidably keyed with the slots 73, this anchorage serves to hold one end of each coil spring 70 and 71, while the other end of the spring is partially wound up by the rearward movement of the leg, as leg 61 for coiled spring 70, and leg 60, for coiled spring 71. The tubular shaft 68 fits tight enough in the sleeve 67 to resist turning by the partial strain which comes from either coiled spring 70 or 71, as the respective leg connected therewith, moves backward, however it can be made possible to forcibly turn the shaft 68 in the sleeve 67, when adjusting the desired action of the said coiled springs 70 or 71, upon the leg connected therewith. Where it is possible that the legs 61 and 60, will slightly move outward, when the doll is put in a sitting position, the coiled spring 75, being in tension, will tend to draw the legs toward one another, by means of the connection of the spring 75 with the discs 77. When the legs 60 and 61, swing down for a standing or walking position, they will be drawn toward one another in

spaced relation, depending upon the length of the tubular shaft 63, against which the discs 77 will bear. In Figures 1 and 2, considering the shoulder joints, there is a tube 78, having journaled on the ends thereof, the thimbles 81, having extending plate flanges 82. These thimbles 81 are elastically drawn on to the tube 78, by the tension, of the spring 83, so that when the pin 85, engages the hole 86, with the arm up, the plate 79 and the plate flange 82, of the shoulder arm 62 are in contact with one another, by virtue of the pulling, of the spring 83. The journaled engagement of the thimble 81 with the tube 83, serves to resist rocking the arm on the tube 83.

Considering now the operation of the joint parts, of the rag doll, shown in Figures 6 and 7, instead of a tubular shaft on which to mount the legs, as shown in Figures 1 and 2, here we have a bolt 93, fixed against turning within the body member 88. Here also we have coiled springs mounted on the leg shaft, but instead of anchoring the spring ends in slots, they are anchored in the respective holes 97 and 99, while the forwardly bent, spring extensions 102, engage the leg rods 100. When one of the arm is up, to have the pin 115, in the shoulder piece 105, engage the hole 114, in the plate 113, the spring 110, bearing against the shoulder 107<sup>a</sup>, within the piece 105, also bears against the disc 111, causing the piece 105, to bear against the plate 113. The discs 111, held against the end of the tube 104, by the wire 112, form fixed bearings for the springs 110. The journalling of the shoulder pieces 105, upon the tube 104, resists any rocking of the arm thereon.

While I have shown and described various forms of my invention, it is possible to devise other forms of walking dolls which will embody my invention, I wish therefore to include all forms thereof which come within the spirit and scope of the following claims.

I claim,

1. In a doll having a structure made in accordance with claim 5, said structure having in addition tension means for drawing the top portions, of said legs along said shaft, toward one another.

2. In a doll having a structure made in accordance with claim 5, said structure having in addition,

a swingable arm having means for holding it in a releasably, locked position,

3. In a doll having a structure made in accordance with claim 5, said structure having in addition, a tubular cross member in the hole of each of said legs, serving to strengthen said top portions and to form bearings for said shaft.

4. In a doll including in combination, a main body portion, a central, depending extension to said main body portion, a shaft below said main body portion fixed to said extension, and positioned to project to the right and to the left of said extension, legs secured to said body, each leg having a cross bearing within its upper portion, a coiled spring within said bearing, upon which the leg is journalled, a portion of said shaft extending within each of said coiled springs, whereby said shaft is enveloped near its end by said leg at its upper portion, having said spring between the shaft and the bore of the cross bearing of each leg, one end of said spring being attached to said shaft, and the other end of said spring being attached to the leg, enveloping said spring, said spring attachment being made in a manner to normally swing the leg, on said shaft, to a forward position in the act of being walked.

5. In a doll adapted to be walked and having a body, arms and a pair of legs, each of which has a bearing hole within and crossing its top portion, and said body having a central depending portion extending below the main part of said body, positioned between the said top leg portions, a joint connecting each of said legs with said depending body portion, said joint including a shaft member fixed to and extending beyond each side of said depending body portion, substantially at right angles thereto, and entering the said leg holes in the said top portions of said legs, a coiled spring loosely surrounding said shaft portions within each of said holes, to have said shaft and said spring in bearing engagement with said legs within said holes, one end of each of said springs being fixed with respect to the leg it engages, and the other end of each of said springs being fixed with respect to said body, whereby each of said springs is tensioned and untensioned within the top portion of the leg it engages, during the swinging of said leg.

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