Feb. 12, 1963 R. GARDEL ET AL 3,077,052

WALKING DOLL SUPPORT AND OPERATING CONNECTION FOR DOLL CARRIAGES

Filed April 13, 1960 6 Sheets-Sheet 1

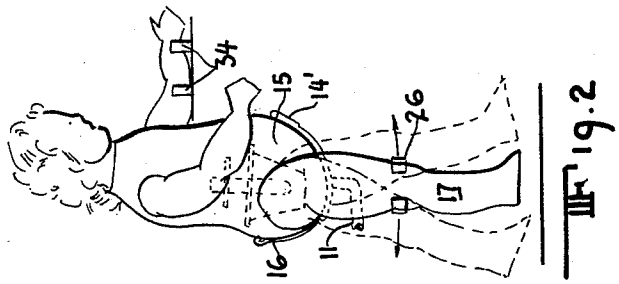


FIG. 2

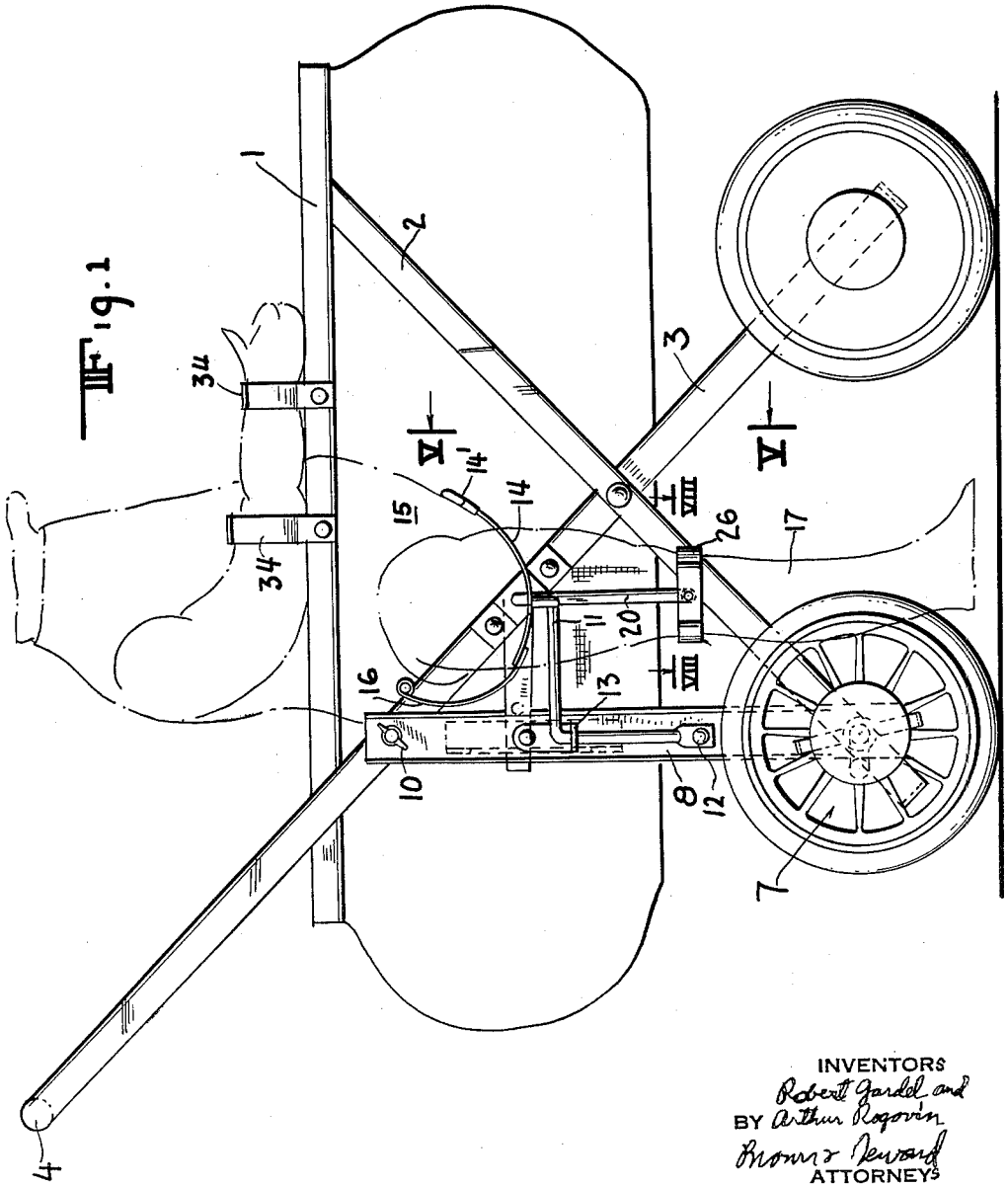


FIG. 1

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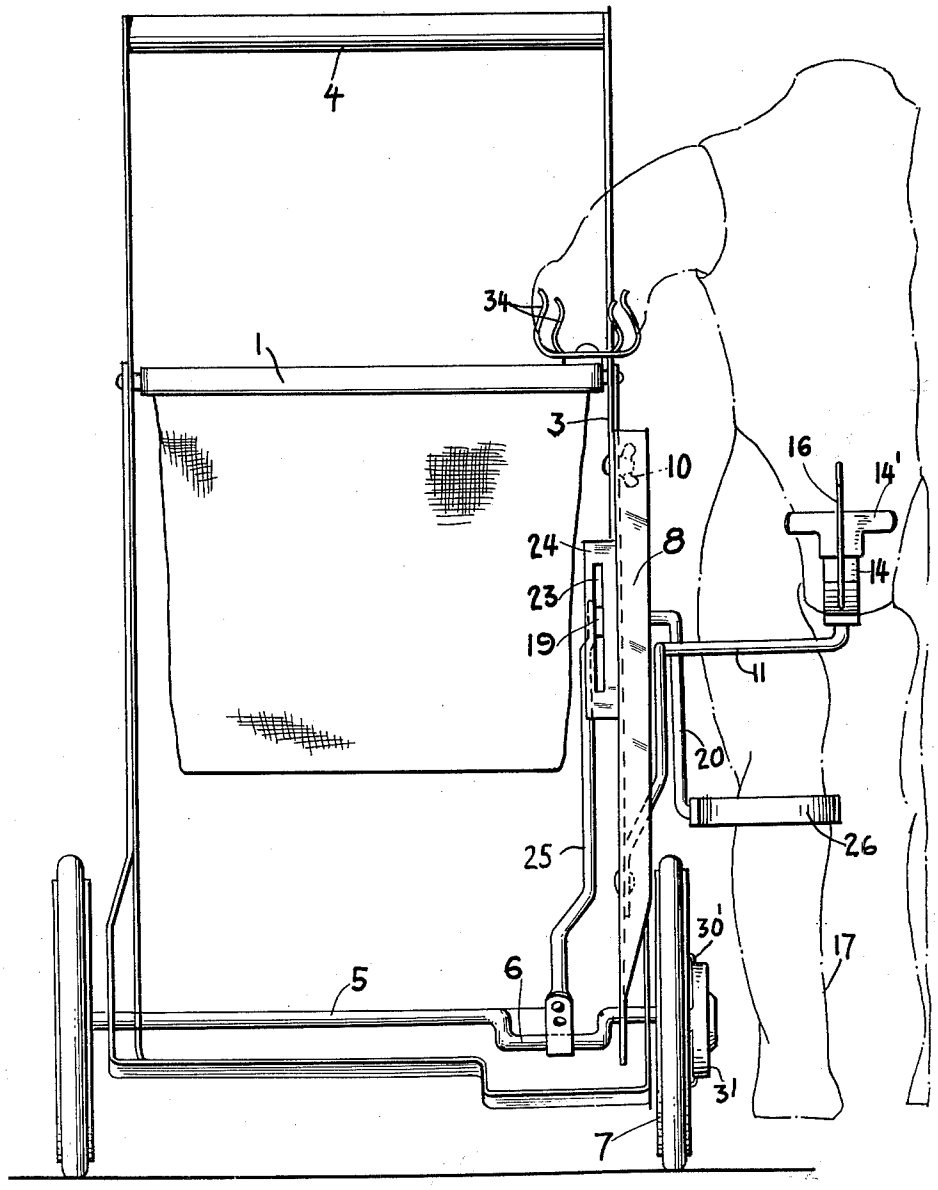


Fig. 3

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WALKING DOLL SUPPORT AND OPERATING CONNECTION FOR DOLL CARRIAGES

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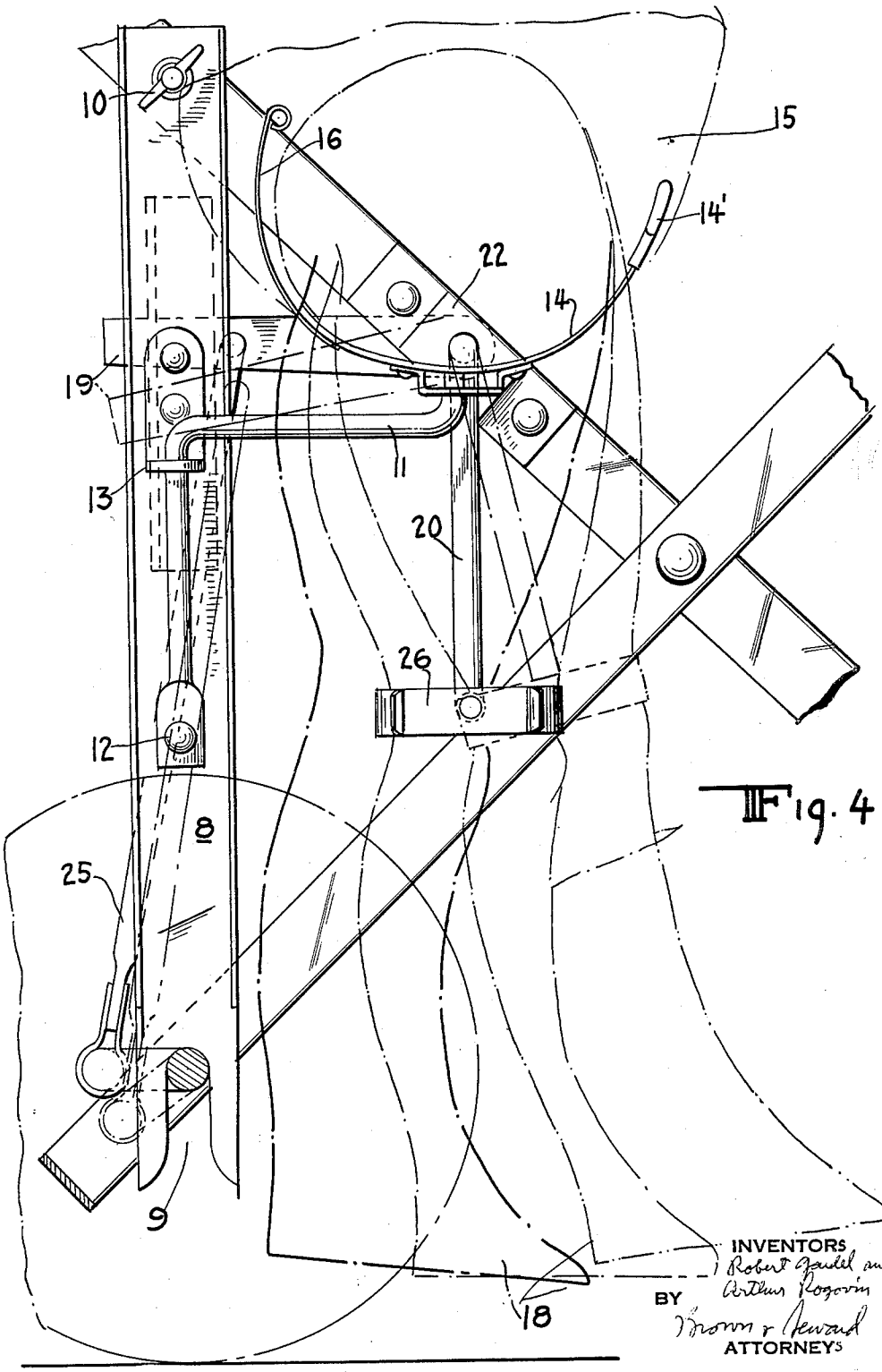


Fig. 4

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WALKING DOLL SUPPORT AND OPERATING CONNECTION FOR DOLL CARRIAGES

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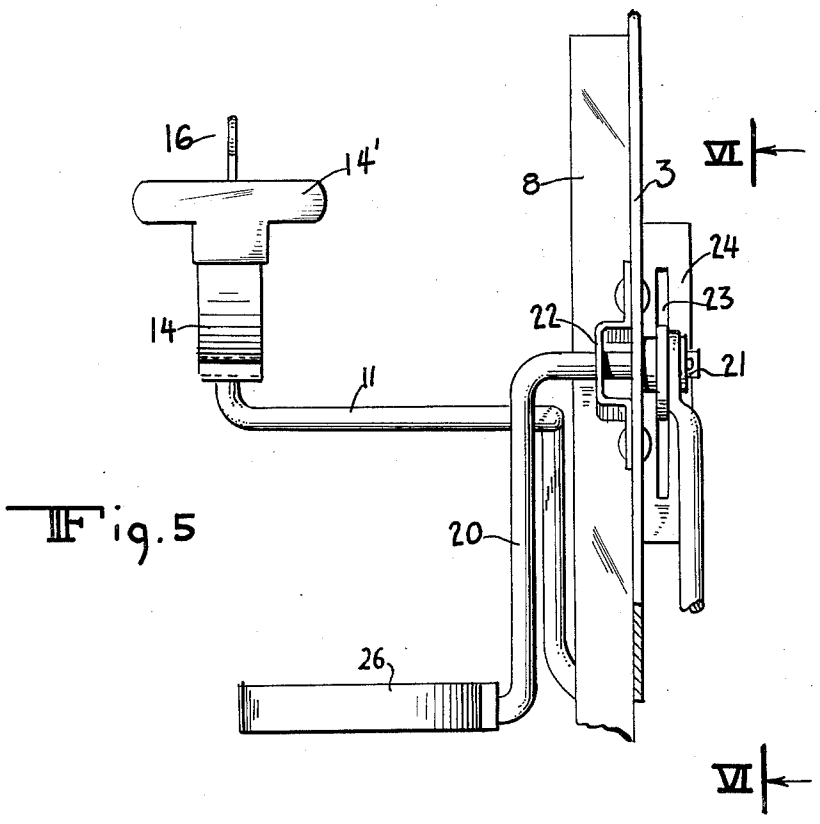


Fig. 5

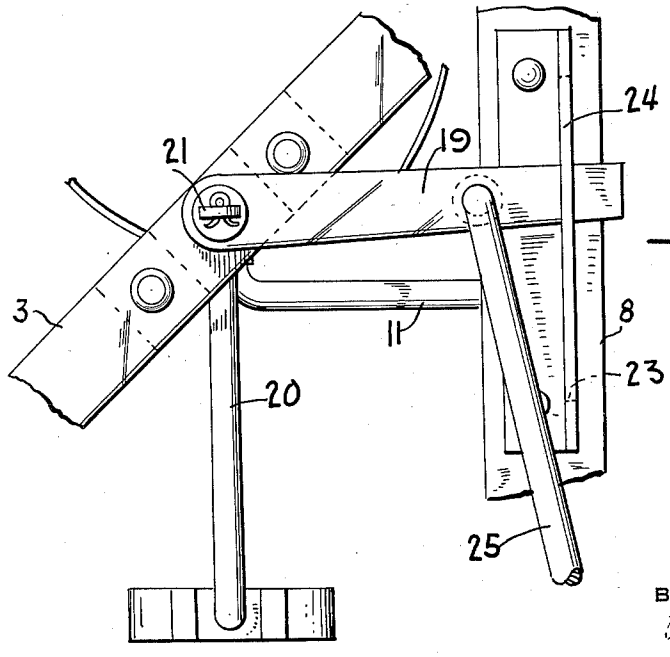


Fig. 6

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WALKING DOLL SUPPORT AND OPERATING CONNECTION FOR DOLL CARRIAGES

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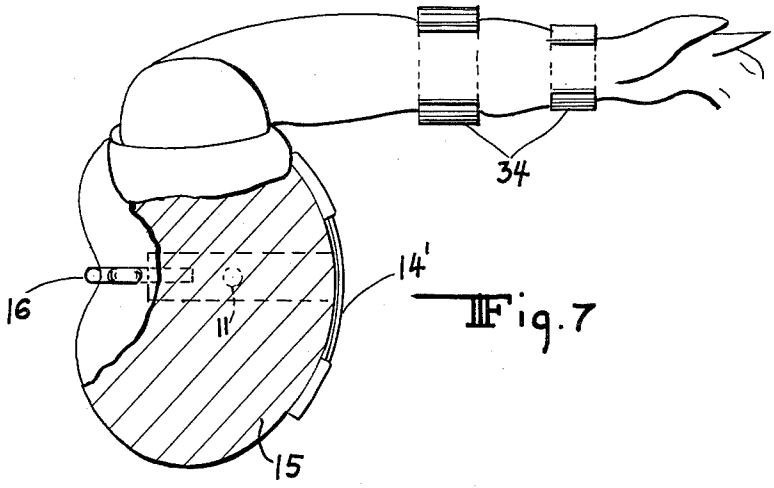


Fig. 7

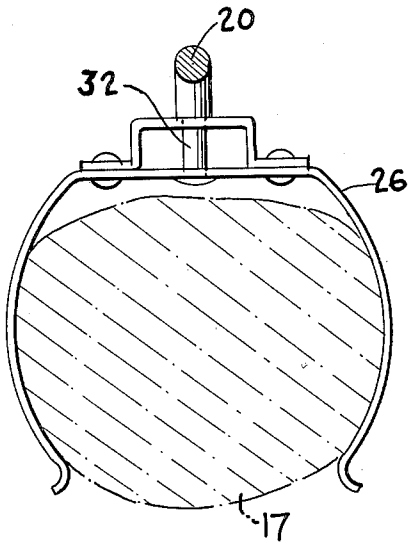


Fig. 8

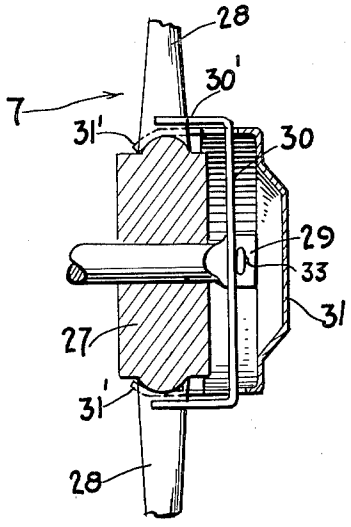


Fig. 9

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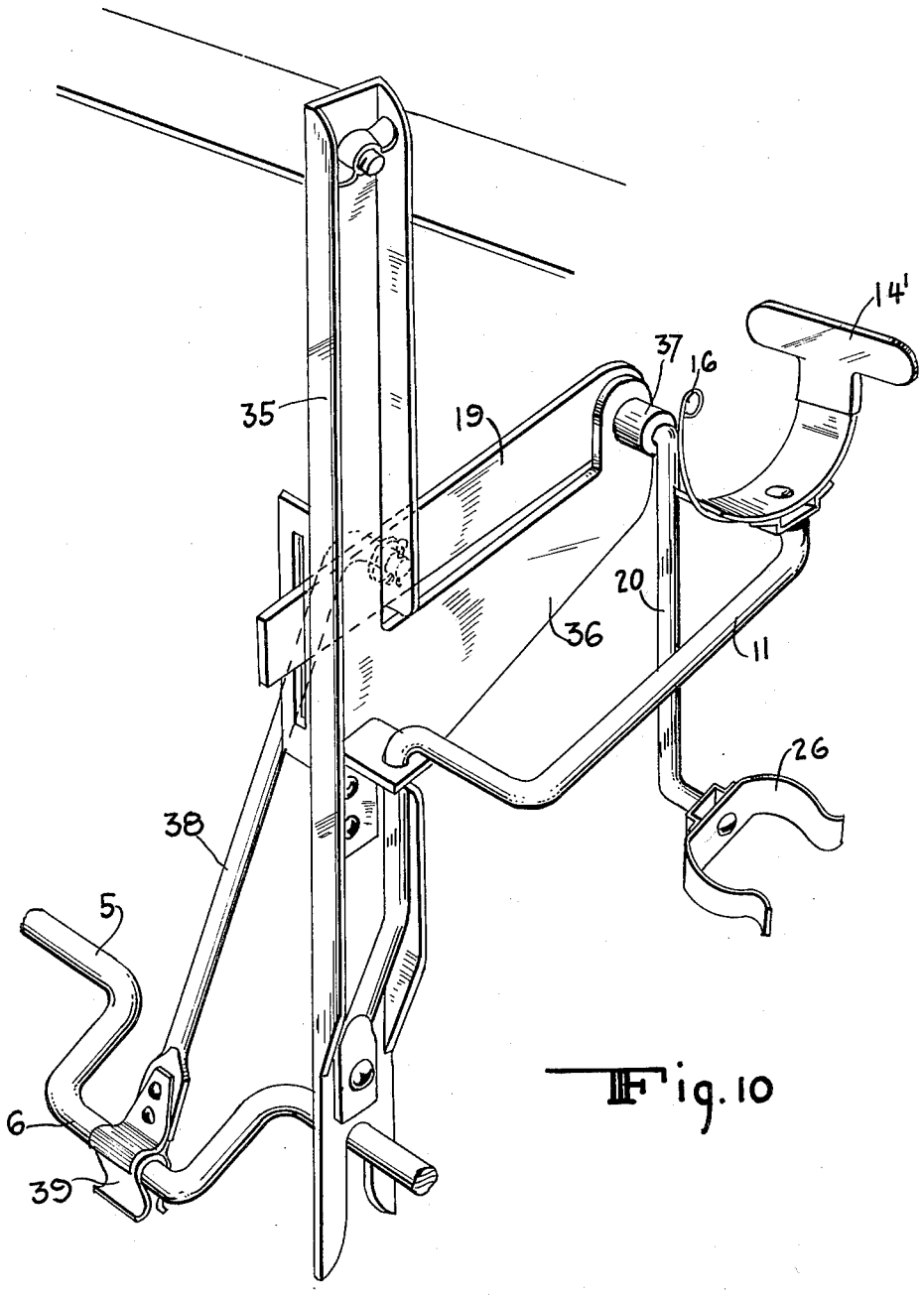


Fig. 10

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United States Patent Office 3,077,052 Patented Feb. 12, 1963

3,077,052

WALKING DOLL SUPPORT AND OPERATING CONNECTION FOR DOLL CARRIAGES

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Filed Apr. 13, 1960, Ser. No. 22,038
9 Claims. (Cl. 46—110)

This invention relates to a walking doll support and operating connection for doll carriages.

It is an object of the invention to provide a mechanism adapted to be assembled with a doll carriage for supporting beside the carriage a doll containing a walking mechanism of any suitable type, parts of the mechanism being so connected to a leg of the doll as to cause the legs to execute "walking" motions as the carriage is propelled.

It is a further object to provide such a mechanism which is capable of operative coaction with any normal "walking" doll of suitable shape and size, i.e., in which no special construction or modification of the doll itself is required.

It is another object to provide such a mechanism which can easily be removed from, or attached to, a suitably constructed doll carriage.

It is also an object to provide certain improvements in the form, construction and arrangement of the several parts whereby the above named and other objects may effectively be attained.

Practical embodiments of the invention are shown in the accompanying drawings, in which:

FIG. 1 represents a side elevation of a doll carriage equipped with the doll support and connection, the relative position of the doll being outlined in broken lines;

FIG. 2 represents a somewhat diagrammatic side elevation of a doll containing a walking mechanism, supported by and connected to a carriage (not shown) at three points, the position of the legs in mid-step being shown in full lines and the extreme forward and rear positions being shown in broken lines;

FIG. 3 represents a rear elevation of the doll carriage and doll as seen from the left of FIG. 1, parts being broken away;

FIG. 4 represents a detail side elevation, on a larger scale than FIG. 1, of the doll support and connection, progressively different positions of the parts being shown in broken lines and parts being broken away;

FIG. 5 represents a detail front elevation of the doll support and upper part of the operating mechanism, part of the carriage frame being in section and parts being broken away, taken on the line V—V of FIG. 1;

FIG. 6 represents a detail side elevation of the parts shown in FIG. 5, as viewed from the right of FIG. 5 (line VI—VI);

FIG. 7 represents a plan view, with the doll body partly in section, showing the relative positions of the body support and arm clips;

FIG. 8 represents a detail horizontal section, on an enlarged scale, taken on the line VIII—VIII of FIG. 1;

FIG. 9 represents a detail vertical section through the hub of the driving wheel; and

FIG. 10 represents a general perspective view of a modified form of doll support and operating connection so arranged that it can be more readily removed from or attached to a doll carriage as a complete independent unit.

Referring to the drawings, the doll carriage is shown as being of the well-known folding type, the rim of the carriage body being supported on diagonal frame bars 2, 3, with the bars 3 being extended upward and connected by a handle 4. Wheels are carried on axles in the lower ends of the bars 2, 3, the front wheels and axle being of normal type while the rear axle 5 is formed with an off-set crank portion 6 and is keyed to rotate with the adjacent wheel 7 by means described below and shown in detail in FIG. 9.

The doll support and operating connection includes a vertical mounting plate 8 having a slot 9 at its lower end to embrace the axle 5 between the bar 2 and wheel 7, and having its upper end fixed, as by the wing nut 10, to the bar 3. A doll supporting bracket 11 is shown as being fixed to the plate 8 at two points (for strength) by the bolt or rivet 12 and by the angle piece 13 above which the bracket projects horizontally outward and forward to a point under the middle of the doll to be supported. At this point an arcuately curved T-shaped saddle 14 is mounted on the end of the bracket, the upper part 14' of the saddle being designed to fit against the lower front part of the doll body 15 (FIGS. 1, 2, 3, 4, 7) and the lower part of the saddle extending rearwardly and having fixed thereon an arcuate spring finger 16 shaped to lie between the buttocks of the doll and to engage the lower back part of the doll body preferably, but not necessarily, in cooperation with a specially formed indentation of the body at that point. The saddle 14 is of such a width that it will not interfere with the normal walking movements of the doll's legs 17 and is located at such a height that feet 18 cannot quite touch the ground.

It will be understood that the doll for which this support and operating connection is designed has a walking mechanism such that the forward and backward movement of either leg causes corresponding movement of the other leg in the opposite direction, the movements being around a horizontal axis near the bottom of the doll body. One such mechanism is that shown in Gardel and Rogovin Patent No. 2,736,135, Feb. 28, 1956, but the present invention is not limited to use with any specific walking mechanism so long as the characteristic just mentioned is present.

The desired life-like walking motion of a doll supported beside a carriage, as described, can be effected by the provision of a bell crank unit made up of the horizontal arm 19 and the vertical arm 20, keyed together as indicated at 21 and journaled in a bearing formed in the bar 3 and small bracket 22 fixed to said bar. The axis of rotation of the bell crank unit should correspond closely to the axis of walking movement of the doll. The arm 19 extends rearwardly and is guided by a vertical slot 23 in an inwardly extending flange 24 on the plate 8, as it is rocked up and down by means of the connecting rod 25, the lower end of which is journaled on the crank portion 6 of the axle 5. The upper end of the rod 25 is shown as being bent over and secured, as by means of a cotter pin, in the arm 19. The arm 20 bears, at its lower end, a leg clip 26 designed to grip the adjacent leg of the doll in the vicinity of the knee, the connection of clip 26 to arm 20 being preferably as shown in FIG. 8 so as to permit rocking adjustment of the clip with respect to the arm around the axis of the stub axle 32 carried by said arm.

While it is evidently possible to connect drivingly the wheel 7 and axle 5 by various means, the arrangement shown in detail in FIG. 9 has been found convenient and requires no special modifications in the wheel itself, which has a hub 27, spokes 28 and a rim. The axle 5 is formed with a flattened end 29; a key bar 30 having a slot designed to receive said end 29 straddles the hub 27 with its ends 30' projecting between adjacent spokes; and a cap 31 which is cut away to accommodate the key bar and provided with inwardly projecting fingers 31' has said

fingers bent radially in to grip the hub so as to hold the cap and key bar in place. The engagement of the key bar with the end 29 of the axle can be further ensured by passing a cotter pin through the hole 33 in the end 29.

In order to provide the doll with additional support and give a generally steadying effect, the rim of the carriage is provided with one or two clips 34 adapted to hold the adjacent arm of the doll in a natural position resting along the top of said rim.

In the modified, self-contained, unit shown in FIG. 10, the parts are largely the same as described above but the mounting plate 35 (corresponding to plate 8) is provided with an integral horizontal extension 36 and the bell crank unit is journaled in a bearing 37 carried by said extension. The connecting rod 38 (corresponding to rod 25) has a readily releasable clip 39 at its lower end so that it can be snapped on or off the crank portion 6 of the axle, as desired. It will be evident that this entire unit can be attached to, or removed from, a doll carriage merely by manipulation of the wing nut 10, clip 39 and slotted bottom end of the plate.

While the operation of the supports and connections herein described is fairly obvious, it may be stated that a doll of suitable size and type is placed in the saddle 14 and held there, in part, by the action of the finger 16; the leg clip 26 is snapped onto the leg adjacent the carriage and the arm on the same side (the left leg and arm, as shown) is placed in the arm clips 34. As the carriage is moved the wheel 7, driving axle 5 and crank 6, rocks the bell crank unit so as to move the adjacent doll leg forward and backward, while the walking mechanism in the doll causes corresponding opposite movement of the other leg. By suitable correlation of the crank and bell crank dimensions the doll's steps can be made to correspond approximately to the rate of movement of the carriage, thus giving a pleasingly life-like effect.

The crank formed in the axle could, if desired, be replaced by an equivalent eccentric, or the crank or eccentric could be located directly on the driving wheel.

It will be noted that the support and connection disclosed herein does not require the provision of any special internal mechanism in the doll, other than normal walking mechanism, and the walking action results from manipulation of one leg in the manner to which children have become accustomed. After a "walk" the doll can be merely lifted off the support, the arm and leg being snapped out of their clips, and the doll can be put to sleep in the carriage or played with as desired.

It will be understood that various changes may be made in the form, construction and arrangement of the several parts without departing from the spirit and scope of the invention.

What we claim is:

1. A walking doll support and operating connection for doll carriages comprising, a mounting element, means for securing said element to a doll carriage, a doll body supporting bracket projecting laterally outward from said element and provided with doll body engaging means, doll leg moving mechanism provided with means for engaging externally a doll leg, means for pivoting said mechanism about a horizontal axis coinciding approximately with the axis of walking movement of the doll legs, and drive means for operatively interconnecting at least one wheel of the doll carriage with the doll leg moving mechanism so as to reciprocate the doll leg engaging means along an arc centered on said axis.

2. A structure according to claim 1 in which the leg moving mechanism includes a bell crank, and in which the leg engaging means is carried by one arm of said bell crank.

3. A structure according to claim 1 in which the mounting element comprises a vertically elongated plate adapted to engage at its lower end a doll carriage axle and to have its upper portion connected to the side of the doll carriage.

4. A structure according to claim 3 in which the doll body supporting bracket projects outwardly and forwardly, and in which the doll body engaging means is in the form of a saddle fixed on said bracket in a position to lie under and engage the lower part of the doll body.

5. A structure according to claim 1 in which the leg moving mechanism includes a bell crank, in which the leg engaging means is carried by one arm of said bell crank and in which the other arm of said bell crank moves in a slot formed by a part of the mounting element.

6. A structure according to claim 5 in which the drive means includes a connecting rod articulated at its upper end to said other arm of the bell crank.

7. A structure according to claim 1 in which the mounting element comprises a vertically elongated plate adapted to engage at its lower end a doll carriage axle and to have its upper portion connected to the side of the doll carriage, said plate being provided with an integral forward extension and the leg moving mechanism being pivoted in said extension.

8. A structure according to claim 7 in which the leg moving mechanism includes a bell crank, in which the leg engaging means is carried by one arm of said bell crank and in which the other arm of said bell crank moves in a slot formed by a part of the mounting element.

9. A structure according to claim 8 in which the drive means includes a connecting rod articulated at its upper end to said other arm of the bell crank and provided at its lower end with a readily releasable crank engaging means.

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