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E. W. BAGGOTT
TOY VEHICLE

2,540,317

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2 Sheets-Sheet 1

Fig. 1

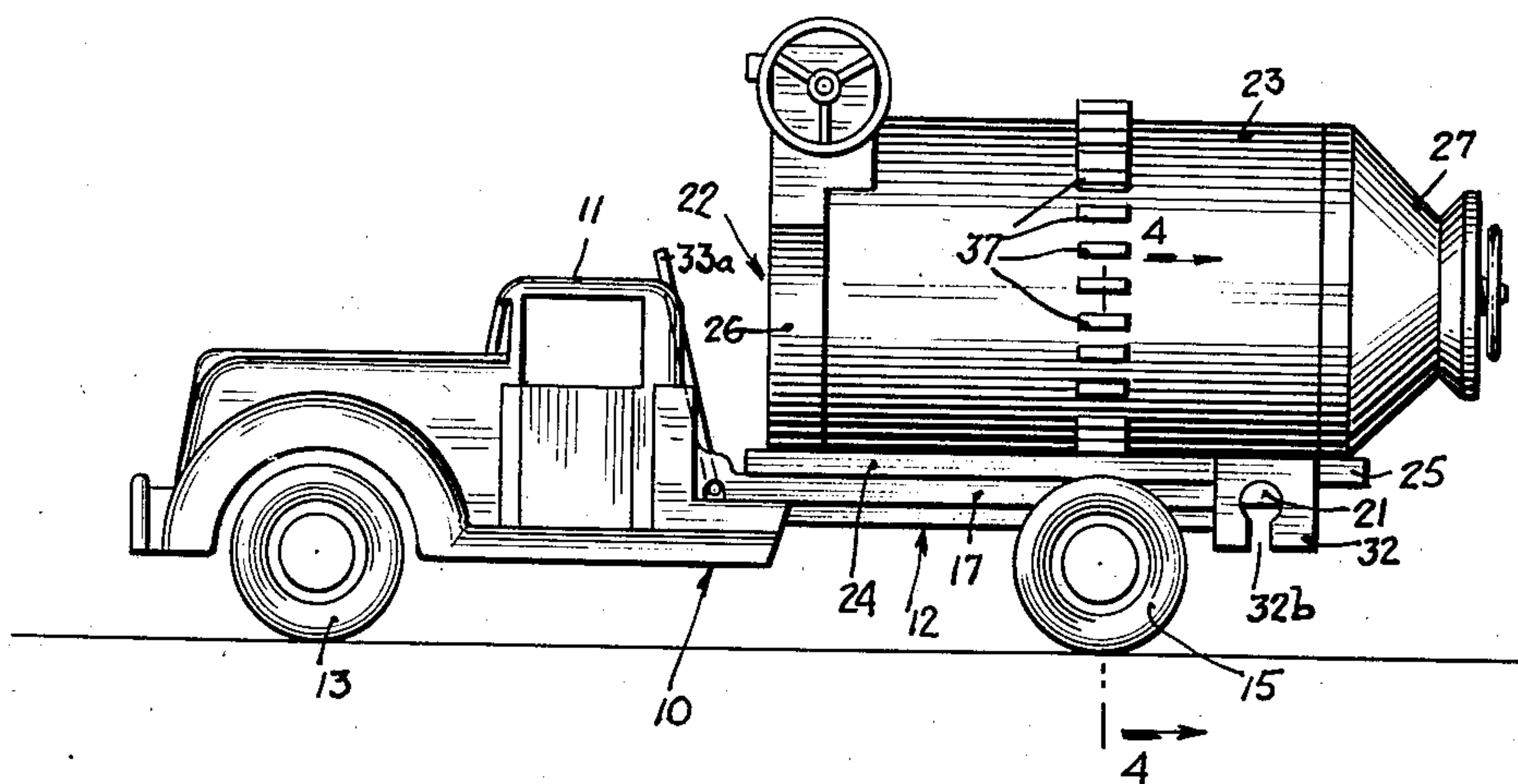
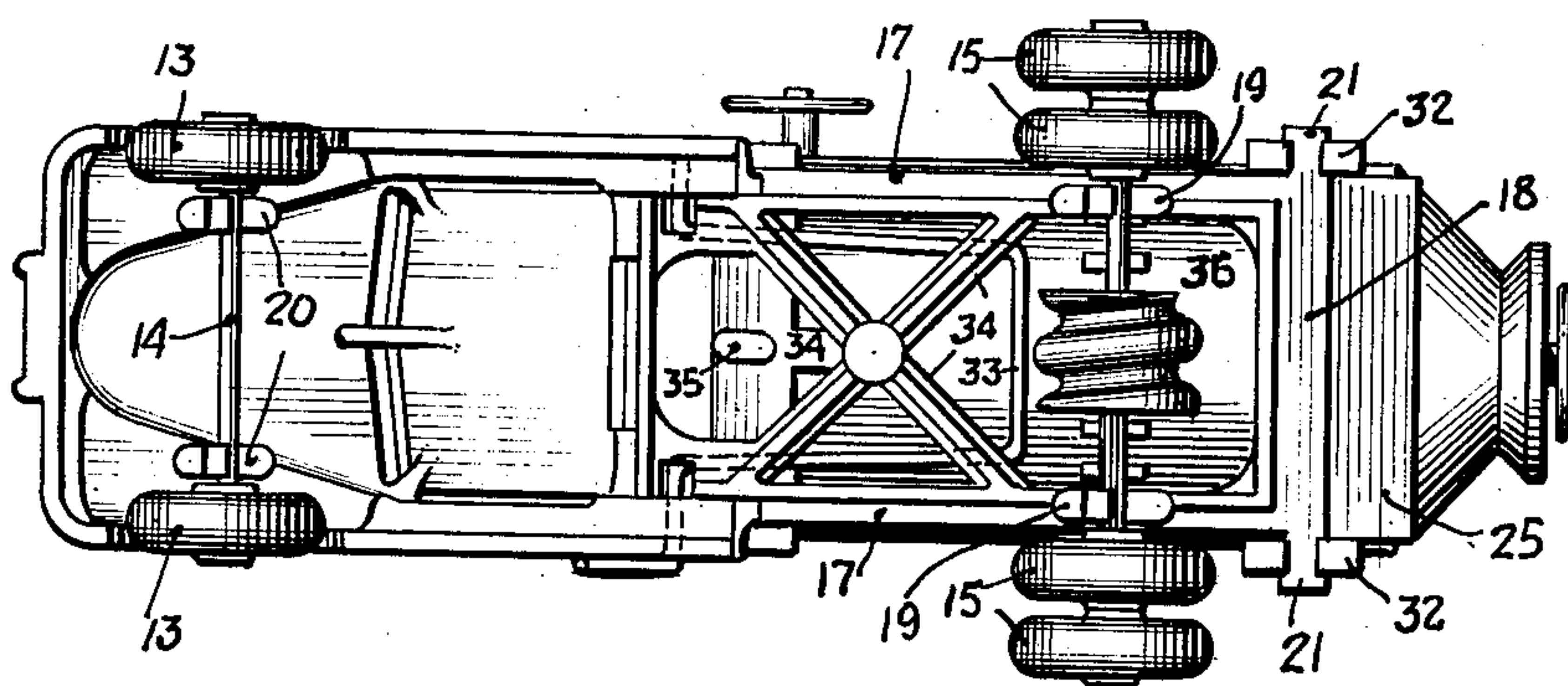


Fig. 2



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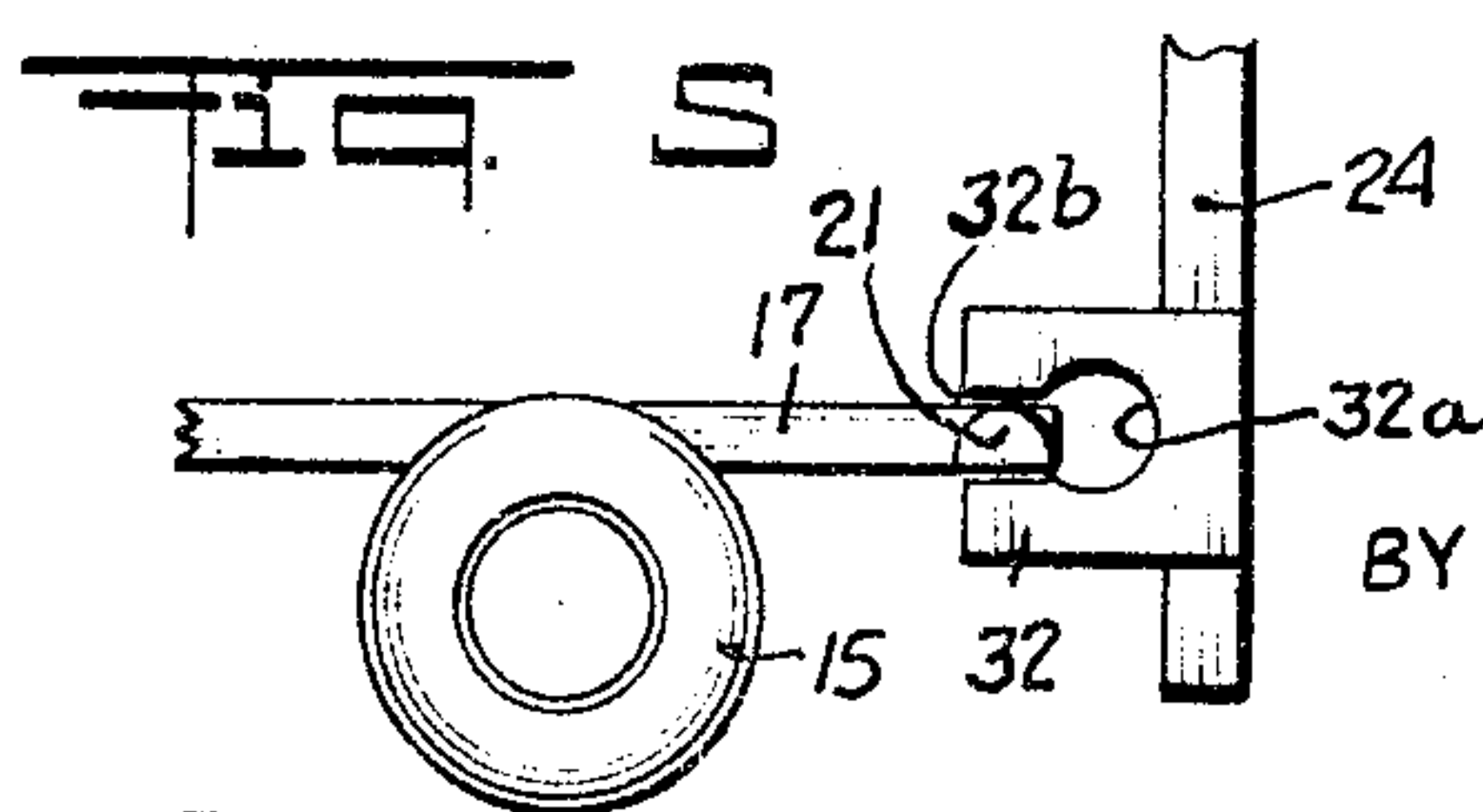
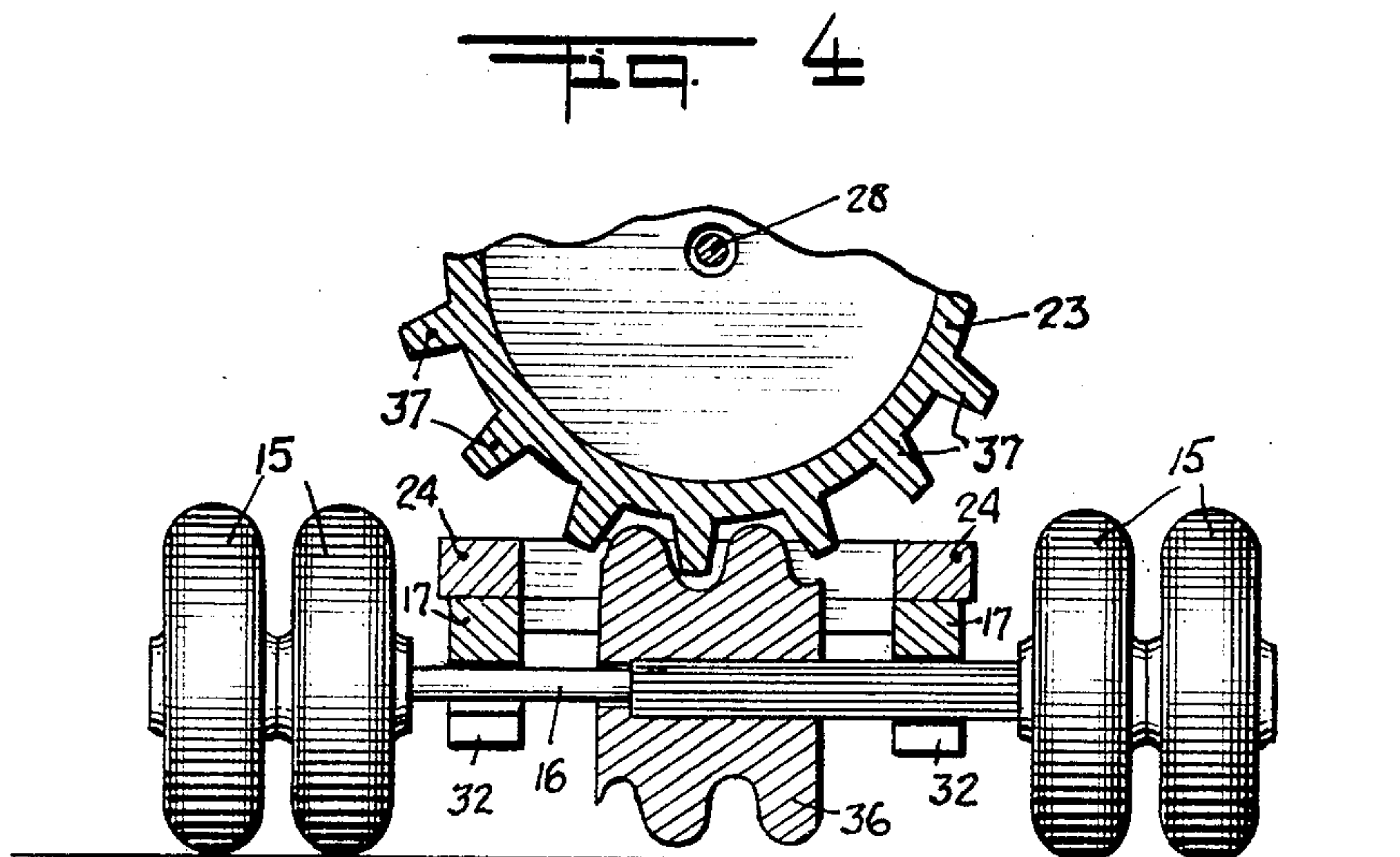
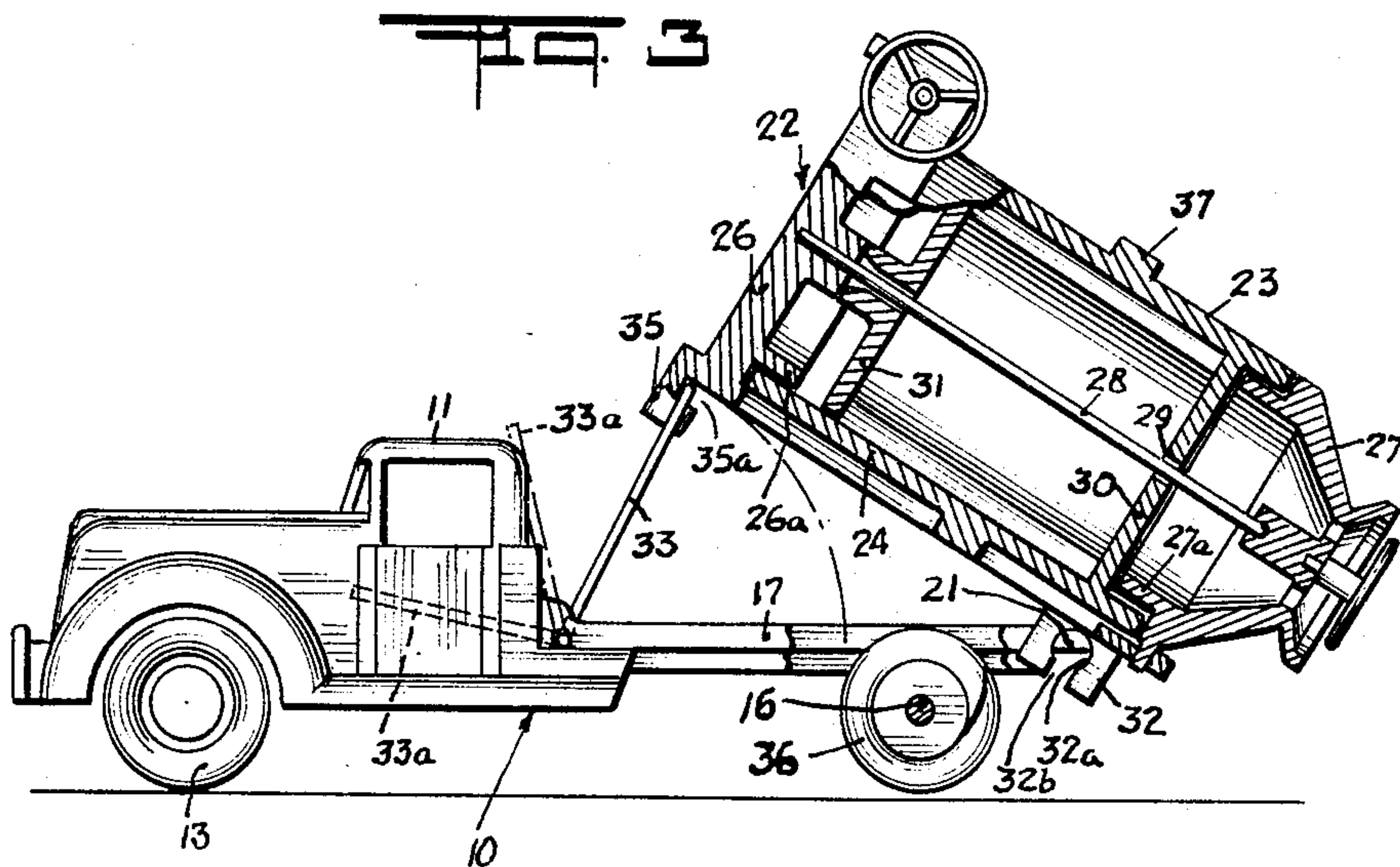
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TOY VEHICLE

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This invention relates to a new and improved toy vehicle and, more particularly, to a toy vehicle carrying a simulated cement or concrete mixer.

The primary object of the invention is to provide a toy vehicle having a simulated rotary cement or concrete mixer mounted thereon, the rotation of the mixer being accomplished simultaneously with the rotation of the rear wheels and axle of the vehicle.

A further object of the invention is the provision of a toy vehicle of the character indicated having a rotatable mixer carrying a plurality of circumferential, radially extending teeth engageable with a worm gear fixed to the rear axle of the vehicle in order to actuate the rotatable mixer upon drawing or pushing the vehicle along the ground.

Another object of the invention is the provision of a toy vehicle having a simulated rotatable mixer associated therewith in such a manner as to permit rapid assembly without the use of pivot pins, screws or the like, the mixer housing being provided with a pair of depending, slotted bearing lugs insertable over a pair of corresponding laterally projecting lugs on the vehicle chassis.

An additional object of the invention is the provision of a toy vehicle having a simulated rotatable mixer tiltably mounted thereupon, the tilting of the mixer housing being accomplished by means of a lever or crank pivoted to the vehicle chassis and having a portion disposed externally of said chassis.

The foregoing objects as well as additional objects and advantages of the invention will be readily apparent in the course of the following detailed description taken in connection with the accompanying drawings which illustrate a preferred embodiment of the invention, and wherein:

Fig. 1 is a side elevation of a toy vehicle embodying the features of the invention;

Fig. 2 is a bottom plan view of the toy vehicle;

Fig. 3 is a side elevational view, partly in section, showing the simulated rotary mixer tilted about its pivot by means of a crank or lever secured to the vehicle chassis;

Fig. 4 is a sectional view taken along line 4—4 of Fig. 1;

Fig. 5 is a fragmentary detail view showing the manner of pivotally mounting the simulated rotary mixer on the toy vehicle chassis.

The toy vehicle may be fabricated from any suitable material, preferably a synthetic resin

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and comprises a body 10 having a cab portion 11, a preferably elongated, rectangular chassis portion 12 extending rearwardly of said cab portion, front wheels 13 fixed to and rotatable with front axle 14 and rear wheels 15 fixed to and rotatable with rear axle 16.

Chassis 12 is preferably formed integrally with cab portion 11 and is defined by a pair of spaced longitudinal sides 17 and a transverse rear end 18. Depending from sides 17 adjacent rear end 18 is a pair of vertically slotted suspension lugs 19 for rotatably retaining rear axle 16. When the material of the toy vehicle is a thermoplastic resin, as is the case in the preferred embodiment of the invention, the rear axle 16 may be secured rotatably within slotted suspension lugs 19 by constricting or swaging inwardly the material at the mouth of said lugs after the axle has been disposed therewithin and while the material is still deformable or plastic. Similarly, front axle 14 may be rotatably housed within a pair of forward suspension lugs 20 depending from cab portion 11 (see Fig. 2).

Transverse rear end member 18 of chassis 12 is formed with a pair of laterally projecting, semicircular pivot lugs 21, each preferably presenting a rounded upper bearing surface in order to tiltably support a housing 22 carrying a simulated rotatable mixer 23 in a manner to be fully described hereinbelow. Housing 22 preferably comprises a rectangular base having a pair of longitudinal side members 24, a pair of transverse members 25, an upright front end 26 and an upright rear end 27. Front end 26 and rear end 27 preferably have reduced annular bearing portions or shoulders 26a and 27a respectively in order to rotatably retain therebetween the hollow cylindrical body 23 simulating a cement or concrete mixer.

If desired, cylindrical mixer 23 may be further suspended on an axial shaft 28 secured between front end 26 and rear end 27 and passing through an axial aperture 29 in a pair of intersecting diametral struts 30 integral with said mixer. In order to further insure anti-frictional rotation of mixer 23a a freely rotatable disc 31 of slightly less diameter than the inner diameter of said mixer may be disposed on shaft 28, as clearly shown in Fig. 3.

Housing 22 carrying mixer 23 may be mounted upon chassis 12 by means of a pair of bearing lugs 32 formed with a circular inner bearing 32a and a constricted slot 32b to allow insertion of each of said bearing lugs over a respective lateral pivot lug 21 of chassis 12. The cooperation be-

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tween circular bearing surface 32a of bearing lugs 32 and the rounded upper bearing surface of semicircular pivot lugs 21 permits the easy assembling and tilting of mixer 23. The tilting action may be accomplished by means of a double-crank lever 33, having an external handle portion 33a, pivotally secured to chassis 12 and normally extending longitudinally between sides 17 thereof and beneath mixer housing 22. Said mixer housing may be formed with an integral Y-shaped support 34 (see Fig. 2) or similar structure against which the transverse portion of lever 33 will slidably abut to tilt mixer 23 about pivot lugs 21 as clearly shown in Fig. 3. Forward transverse member 25 of mixer housing 22 preferably carries an integral depending catch 35 having a locking recess 35a for releasably engaging lever 33 and holding said housing in tilted position.

Means are provided for accomplishing the rotation of simulated cylindrical mixer 23 as the toy vehicle is drawn or pushed along a supporting surface. For this purpose a worm gear 36 is fixed centrally to and rotatable with rear axle 16 and cylindrical mixer 23 is formed with a plurality of integral circumferential, radially extending teeth 37 which are consecutively engaged by said worm gear as rear axle 16 and rear wheels 15 are caused to rotate by pushing the toy vehicle along the ground.

It is thus apparent that a toy vehicle having a tiltable housing carrying a rotatable simulated mixer has been provided; the rotation of the mixer being actuated in a direct and extremely simple manner by means of a worm gear fixed to the rear axle and rotatable therewith, said worm gear consecutively engaging a series of circumferential, radially extending teeth formed integrally on the outer surface of said simulated cylindrical mixer. It has been empirically determined that rotation of the mixer is best effected by means of a flexible, floating engagement between worm gear 36 and mixer teeth 37 exemplified in the preferred embodiment of the invention by the slotted suspension lugs 19 for the rear axle 16.

Since certain modifications may be made in the toy vehicle of the invention without departing from the scope thereof, it is intended that all matter contained in the foregoing description and shown in the accompanying drawings be interpreted merely as illustrative and not in a limiting sense.

What is claimed is:

1. A toy vehicle comprising a body having a cab portion and an open, substantially rectangular chassis portion integral therewith, a pair of front wheels mounted on a front axle suspended from said cab portion, a pair of rear wheels mounted on a rear axle suspended from said chassis portion, a housing tiltably mounted on said chassis, said housing comprising an open, substantially rectangular base normally superimposed upon said chassis, a front end member mounted on said base and a rear end member mounted on said base, said front and rear end members presenting integral, opposed annular shoulders, a hollow, simulated cylindrical mixer rotatably mounted between said front and rear end members and extending over said shoulders, an axial shaft extending between said front and rear end members, a freely rotatable disc disposed on said shaft within said cylindrical mixer adjacent one end thereof, said mixer having at its opposite end a pair of integral, di-

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ametral intersecting struts having an axial aperture therewithin, said shaft passing through said axial aperture, said mixer having an external circumferential band of integral radially extending teeth, a worm gear fixed to and rotatable with said rear axle, said worm gear consecutively engaging said mixer teeth, whereby rotation of said worm gear as said toy vehicle is drawn across a supporting surface causes rotation of said simulated cylindrical mixer.

2. A toy vehicle in accordance with claim 1, said chassis having a pair of lateral pivot lugs, said pivot lugs having a semi-circular cross-section and an upper circular bearing surface, the base of said housing having a pair of depending bearing lugs each having an inner circular bearing surface and a constricted slotted portion communicating therewith for insertion over a respective pivot lug of said chassis.

3. A toy vehicle in accordance with claim 1, said chassis having a double-crank lever pivoted thereto, said lever having a handle portion disposed externally of said chassis, the base of said housing having a depending catch with a recess therewithin for releasably retaining said lever and releasably securing said housing in tilted position.

4. A toy vehicle comprising a body having a cab portion and a chassis portion integral therewith, a pair of front wheels mounted on a front axle suspended from said cab portion, a pair of rear wheels mounted on a rear axle suspended from said chassis portion, a housing tiltably mounted on said chassis, said chassis having a pair of lateral pivot lugs, said pivot lugs having a semi-circular cross-section and an upper circular bearing surface, said housing having a pair of depending bearing lugs, each having an inner circular bearing surface and a constricted slotted portion communicating therewith for insertion over a respective pivot lug of said chassis, said housing carrying a simulated concrete mixer rotatable thereupon, said mixer having an external circumferential band of integral, radially extending teeth, a worm gear fixed to, and rotatable with said rear axle, said worm gear consecutively engaging said mixer teeth, whereby rotation of said worm gear as said toy vehicle is drawn across a supporting surface causes rotation of said simulated mixer.

5. A toy vehicle comprising a body having a cab portion and a chassis portion integral therewith, a pair of front wheels carried by a front axle secured to said cab portion, a pair of rear wheels carried by a rear axle, said chassis having a pair of depending, slotted suspension lugs for the reception of said rear axle, said chassis also having a pair of lateral pivot lugs, said pivot lugs having a semi-circular cross-section and an upper circular bearing surface, a housing tiltably mounted on said chassis, said housing having a pair of depending lugs having an inner circular bearing surface and a constricted slotted portion communicating therewith for insertion over a respective pivot lug of said chassis, said housing carrying a simulated cylindrical mixer rotatable thereupon, said mixer having an external circumferential band of integral, radially extending teeth, a worm gear fixed to and rotatable with said rear axle, said worm gear consecutively engaging said mixer teeth, whereby rotation of said worm gear as said toy vehicle is drawn across a supporting surface causes rotation of said simulated mixer, said rear axle being vertically

slidable in said slotted suspension lugs, so that
said worm gear flexibly engages said mixer teeth.
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