June 4, 1963 R. W. PATCH 3,091,888

TOY TRUCK

Filed June 11, 1962 2 Sheets-Sheet 1

FIG. 1

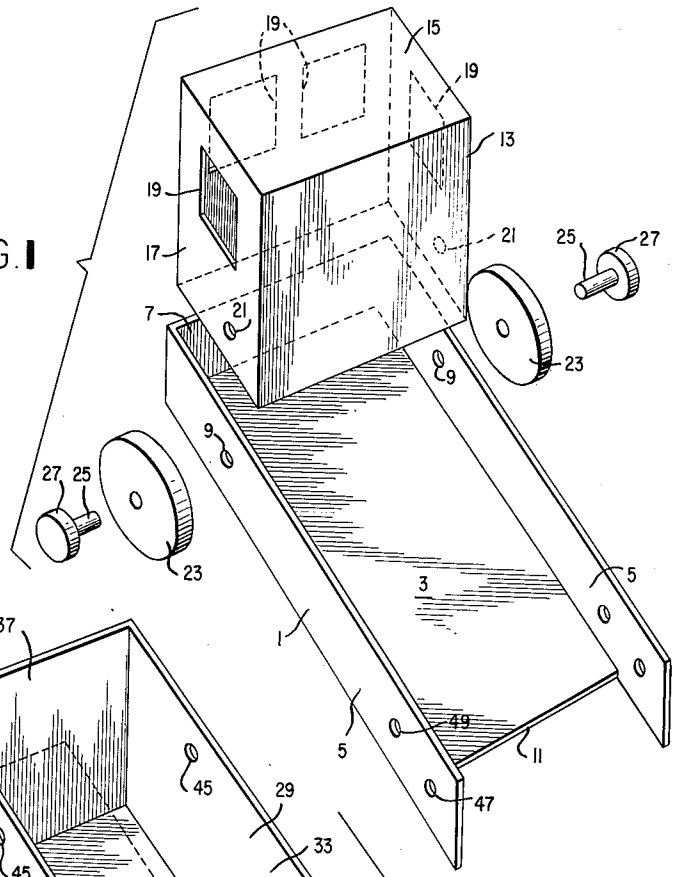
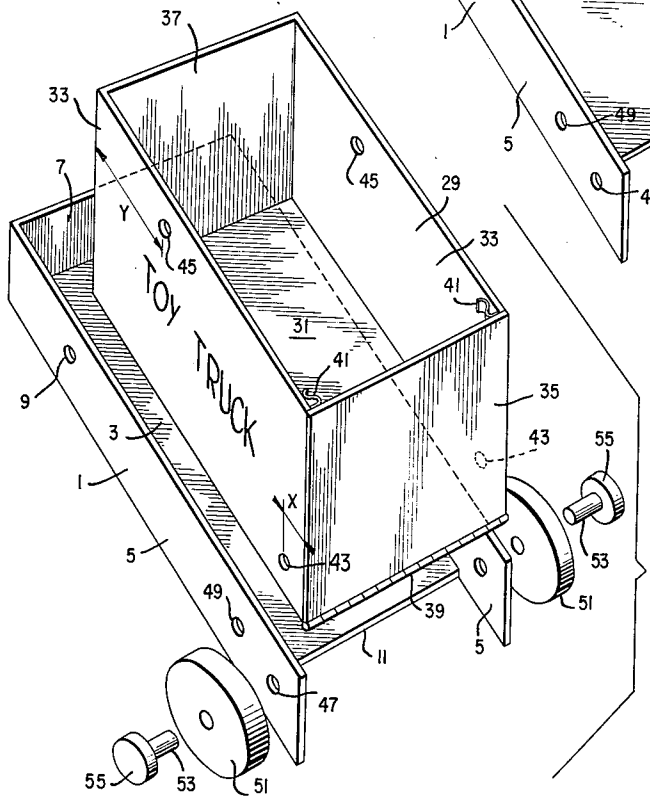


FIG. 2



INVENTOR

ROBERT W. PATCH

June 4, 1963 R. W. PATCH 3,091,888

TOY TRUCK

Filed June 11, 1962 2 Sheets-Sheet 2

FIG. 3

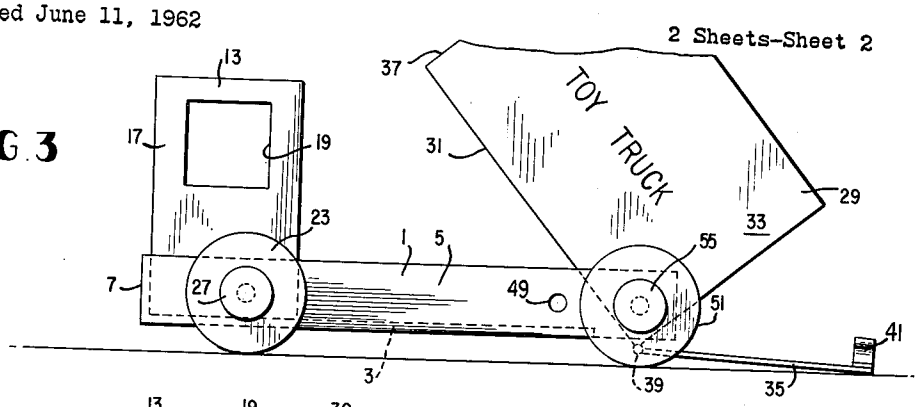
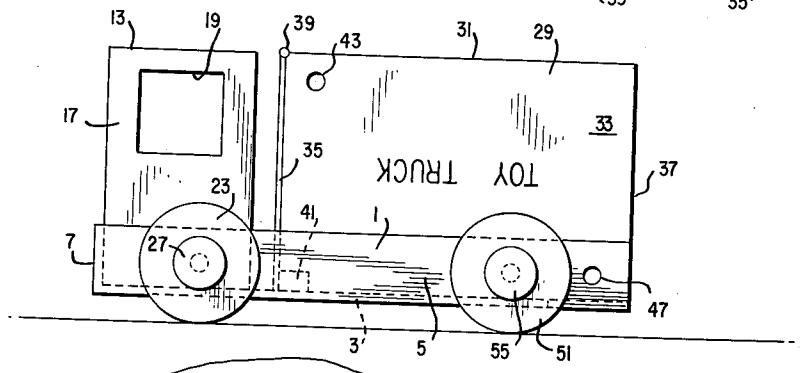


FIG. 4



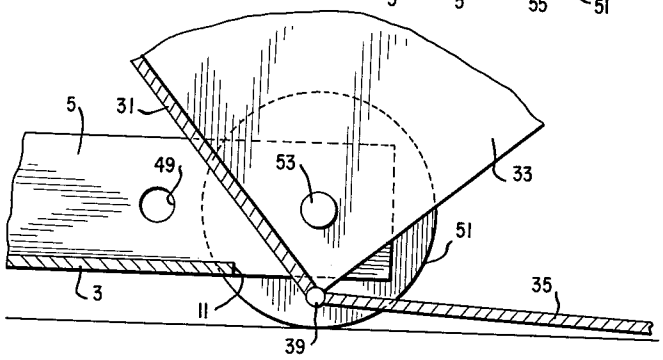


FIG. 5

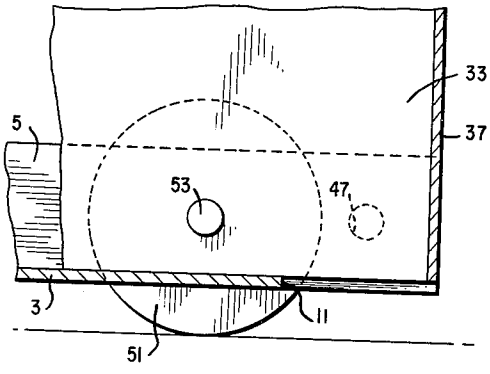


FIG. 6

INVENTOR

ROBERT W. PATCH

United States Patent Office 3,091,888 Patented June 4, 1963

3,091,888

TOY TRUCK

Robert W. Patch, 4118 Woodbine St., Chevy Chase, Md.

Filed June 11, 1962, Ser. No. 201,628
14 Claims. (Cl. 46—17)

The present invention relates to toy trucks, more particularly of the type that may be readily assembled and disassembled by a child.

Accordingly, it is an object of the present invention to provide improvements in toy trucks that can be readily assembled and disassembled by a child.

Another object of the present invention is the provision of a toy truck that is convertible from one type of truck to another type of truck using only the same parts for each type of truck.

Finally, it is an object of the present invention to provide a toy truck that will be relatively simple and inexpensive to manufacture, easy to assemble and disassemble and to convert from one type of a truck to another, and rugged and durable in use.

Other objects and advantages will become apparent from a consideration of the following description, taken in connection with the accompanying drawings, in which:

FIGURE 1 is an exploded perspective assembly view of a toy truck according to the present invention with the truck body removed;

FIGURE 2 is a view similar to FIGURE 1 but with the truck body in place and the cab removed;

FIGURE 3 is an elevational view of the toy truck of the present invention in the form of a dump truck with the dump body raised;

FIGURE 4 is a view similar to FIGURE 3 but showing the toy truck of the invention in the form of a closed van truck;

FIGURE 5 is an enlarged view in cross section of a portion of FIGURE 3; and

FIGURE 6 is an enlarged view in cross section of a portion of FIGURE 4.

Referring now to the drawings in greater detail, and first to FIGURE 1 thereof, there is shown a toy truck having a chassis 1 comprised of a flat bottom 3 in the form of a plate having side members in the form of upwardly extending side edges or sills 5. Side sills 5 are interconnected at their forward ends by a front edge or end sill 7 that extends upwardly from bottom 3. A pair of axially aligned openings 9 extend through each of sills 5. Bottom 3 extends to the rear and terminates in a rear edge 11; but side sills 5 extend rearwardly beyond rear edge 11 and terminate in cantilevered rear ends. Bottom 3 thus extends between and rigidly interconnects side sills 5 except at the rear ends of sills 5.

A driver's cab 13 is removably mounted on the front of chassis 1 between side sills 5 and behind front end sill 7. Preferably, cab 13 is in contact with sills 5 and 7. Cab 13 has a closed top 15 and an open bottom and four lateral sides 17. The three front sides are provided with windows 19 that open through sides 17 into the empty interior of cab 13.

Cab 13 is also provided with a pair of aligned recesses in the form of openings 21 through the opposite lateral sides 17 thereof. Openings 21 are spaced between the front and rear sides 17 of cab 13 and above the bottom edge of cab 13. Openings 9 and 21 are in registry with each other when cab 13 rests on bottom 3 in contact with sills 5 and 7. The truck has removable front wheels 23 that are supported on axles 25 that pass through openings through the wheels and through the aligned openings 9 and 21 on each side of the truck. Axle 25 has an enlarged head 27 that limits inward movement of axle 25 and that provides a thumb piece for pushing axle 25 through openings 9 and 21. Preferably, wheels 23 are loose on axles 25 but axles 25 have a snug frictional fit with openings 9 and 21.

Referring now to FIGURE 2, the truck is seen to include a truck body 29. In the orientation of truck body 29 shown in FIGURE 2, the top of the truck body is open and the bottom 31 is closed. In this arrangement, the truck is an open-topped dump truck. The truck body includes side walls 33 and end walls 35 and 37. In the orientation of FIGURE 2, end wall 35 is the rear end wall and is mounted by a hinge 39 at its lower edge on the rear edge of bottom 31. End wall 35 is thus mounted for vertical swinging movement about a horizontal axis at the lower rear of the truck body when the truck body is positioned as in FIGURE 2. Spring friction clips 41 carried by the upper outer corners of end wall 35 engage yieldably with the upper rear inner corners of side walls 33 releasably to retain end wall 35 closed.

Truck body 29 has a pair of aligned recesses in the form of first openings 43 through opposite side walls 33. Openings 43 are not only spaced a distance x from the rear ends of side walls 33 but also are adjacent but spaced above bottom 31 in the orientation shown in FIGURE 2. Truck body 29 is also provided with recesses in the form of second openings 45 therethrough that are aligned with each other and extend through opposite side walls 33 and are spaced a distance y from front end wall 37 and are adjacent but spaced below the upper edge which marks the open top of the truck body in the orientation shown in FIGURE 2. The vertical distances by which openings 43 and 45 are spaced respectively above the lower edge and below the upper edge of the side walls 33 are the same; but the distances x and y by which openings 43 and 45 are spaced from end walls 35 and 37 respectively are different from each other. Distance y is substantially longer than distance x.

Adjacent their rear ends, side sills 5 are provided with first openingsg 47 therethrough, the openings 47 being aligned with each other on opposite sides of chassis 1. Sills 5 are also provided with second openings 49 therethrough that are aligned with each other on opposite sides of chassis 1.

Openings 47 are to the rear of openings 49 a distance equal to the difference in lengths x and y. Openings 47 are spaced above the plane of the upper surface of bottom 3 a distance equal to the distance by which openings 43 are spaced above the lower edge of side walls 33 as seen in FIGURE 2; and openings 49 are spaced above bottom 3 a distance equal to the distance by which openings 45 are spaced below the upper edge of side walls 33. The distances by which openings 43 and 45 are vertically spaced from their adjacent horizontal edges of side walls 33 are not necessarily equal, but in each case they are less than the height of side sills 5.

An important feature of the invention is the relationship between the position of rear edge 11 of bottom 3 and openings 47 and 49. In the illustrated embodiment, openings 47 are to the rear of the vertical plane that includes edge 11, while openings 49 are disposed forwardly of that vertical plane, for a purpose that will shortly appear.

The truck also has rear wheels 51 detachably mounted on the chassis by means of axles 53 having enlarged heads 55 that serve as thumb pieces as described in connection with the front wheel axles.

Another very important feature of the invention is that axles 53 are insertable through rear wheels 51 and selectively through openings 47 and 43; or when truck body 29 is turned upside down and end for end, axles 53 are insertable through rear wheels 51 and openings 49 and 45. In the first case, as indicated in FIGURE 3, the truck

body is in the position of FIGURE 2 and the truck serves as a dump truck. The truck body can swing about aligned axles **53** into the position shown in FIGURE 3. Because openings **47** are to the rear of rear edge **11** of bottom **3**, there is no interference between the closed bottom **31** of the truck body and the bottom **3** of the chassis. This relationship is best seen in FIGURE 5, in which it can be clearly seen that the location of openings **47** to the rear of edge **11** is desirable as permitting clockwise swinging movement of bottom **31** as seen in FIGURE 5 without interference with bottom **3**. Axles **53** should be snug in openings **47** and loose in openings **43**, or snug in openings **43** and loose in openings **47**.

By contrast, when the truck body is turned upside down and end for end as seen in FIGURE 4, then the open or free edges of side walls **33**, seen at the bottom of side walls **33** in FIGURE 6, interfere with the bottom **3** and do not permit clockwise swinging movement of the truck body. This is because the axles **53** are then inserted through wheels **51** and through openings **49**, which are disposed forwardly of openings **47**. Axles **53** can then be snug both in openings **49** and in openings **45**.

The important relationship of openings **47** and **49** is thus seen to be that they be spaced apart along sills **5**. Preferably, openings **47** are behind edge **11**; but of course openings **47** can be moved forward of their illustrated position by moving openings **43** closer to bottom **31** or to end wall **35** or both. Thus, openings **47** and **49** are so related to bottom **3** and especially rear edge **11** thereof that bottom **3** prevents substantial swinging of body **29** in FIGURE 4 but permits it in FIGURE 3. However, as best seen in FIGURE 5, bottom **3** with its rear edge **11** performs the further function of preventing excessive swinging movement of truck body **29** relative to the chassis; and in the illustrated preferred form, the center of gravity of truck body **29** is behind the vertical plane of axles **53** in FIGURES 3 and 5 when bottom **31** contacts edge **11**, so that the full dump position (not shown) of the truck body is an equilibrium position.

It is also to be noted in connection with FIGURE 4 that when the truck body thus forms a closed van, the swingable end wall **35** is disposed at the front, quite close behind cab **13**, and hinge **39** is at the upper forward corner of the truck body. End wall **35** is thus effectively kept closed, because its free edge adjacent spring clips **41** is at the lower forward corner of the truck body, which is hidden between sills **5** and behind cab **13**.

It should also be noted that the positioning of openings **43** and **45** on the truck body different distances *x* and *y* from their adjacent end walls, coupled with the provision that openings **47** and **49** be spaced apart lengthwise of sills **5** a distance equal to the differences between distances *x* and *y*, assures that the truck body will assume about the same position lengthwise of the chassis in either of its alternate positions.

Furthermore, it is to be noted that front end sill **7** not only serves as a means for interconnecting and bracing side sills **5** so that they cannot be broken by outward and downward twisting, but also serves as a simulated bumper as seen in FIGURES 3 and 4. Similarly, heads **27** and **55** not only serve as thumb pieces but also simulate hubcaps.

It will also be appreciated that the toy truck of the present invention can be made of a variety of materials. Preferably, the materials should be of a thickness such that the axial extent of the openings **9**, **47** and **49** on the sills, taken with the openings **21**, **43** or **45** in registry therewith, should be sufficient to give good support for the truck on the cantilevered pins provided by axles **25** and **53** through wheels **23** and **51**. If the device is made of thin sheet metal, for example, then the axial extent of openings **9** and **21**, and **47** or **49** and **43** or **45**, should be increased by providing inwardly extending sleeves (not shown) about openings **21**, **43** and **45**; but this provision is less preferred than using sufficiently thick material, for the inwardly extending sleeves or sockets that would thus project into the interior of truck body **29** would detract from the attractiveness of the toy. Therefore, it is preferred that the material of the truck be relatively thick such as fiberboard or wood. It is also possible to provide plates (not shown) secured to the inner sides of the cab and truck body adjacent openings **21**, **43** and **45** to close those openings and leave sockets with closed inner ends, and so to proportion the length of axles **25** and **53** that when the axles are pushed in to their respective assemblies, those plates will contact and stop the inner ends of the axles before heads **27** or **55** press wheels **23** or **51** so tightly against sills **5** that the wheels cannot freely turn.

The term "recesses" as used in this application and the appended claims thus covers openings through the cab or truck body, or openings that are closed by plates or the like, or sleeves whether they are open or closed at their inner ends, among other constructions.

In use, the person playing with the toy truck may pull out or replace the axles **25** and thereby assemble and disassemble the front end of the truck with its removable wheels **23** and cab **13**, or he may pull out and replace the rear wheel axles **53**, turning the truck body upside down and end for end selectively to make the truck a closed van truck or a dump truck, with the selection of appropriate openings **47** or **49** in registry with openings **43** or **45** depending on which position the truck body is in. When in dump truck position, the person playing with it may also swing the truck body up and down as indicated in FIGURE 3 and may pull open and close the door provided by rear wall **35**. In this way, the truck may be made into several different kinds of trucks by use of exactly the same pieces in each case.

From a consideration of the foregoing disclosure, it will be obvious that all of the initially recited objects of the present invention have been achieved.

Although the present invention has been described and illustrated in connection with preferred embodiments, it is to be understood that modifications and variations may be resorted to without departing from the spirit of the invention, as those skilled in this art will readily understand. Such modifications and variations are considered to be within the purview and scope of the present invention as defined by the appended claims.

What is claimed is:

1. A toy truck comprising a chassis having a bottom and upstanding side edges, the side edges extending to the rear of the rear edge of the bottom, a truck body, rear wheels on the truck, and axle means on which the rear wheels are mounted, the axle means mounting the truck body on the side edges for vertical swinging movement about a horizontal axis disposed to the rear of the rear edge of the bottom.

2. A toy truck as claimed in claim 1, the axle means comprising a pair of axially aligned laterally spaced apart axles removably insertable through the rear wheels and side edges and into engagement with the truck body and having enlarged portions on their outer ends.

3. A toy truck comprising a chassis having side members and means interconnecting lower portions of the side members, said side members having openings therethrough, a truck body having a top and a bottom, one of the top and bottom being open and the other of the top and bottom being closed, the truck body having recesses therein adjacent the top and bottom thereof that are alignable with side member openings not only when the truck body is in right-side-up position but also when the truck body is in upside down position, and means removably insertable through said openings and into said recesses selectively to interconnect the chassis and the truck body in either of said positions of the truck body.

4. A toy truck as claimed in claim 3, the truck having rear wheels, the rear wheels being mounted on axles that comprise said last-named means.

5. A toy truck as claimed in claim 3, the truck body having an end wall mounted for vertical swinging movement about a horizontal axis that is at the lower rear of the truck body in one of said positions of the truck body.

6. A toy truck comprising a chassis having side members and means interconnecting lower portions of the side members, each of the side members having a pair of horizontally spaced openings therethrough adjacent the rear of the truck, a truck body adapted to be carried by the chassis above said means and between the side members, the truck body having first recesses therein that register with the rearward one of said openings in each side member in a first position of the truck body on the chassis, the truck body having second recesses therein that register with the forward one of said openings in each side member when the truck body is in a second position on the chassis in which the truck body is turned upside down and end for end from said first position, and means removably insertable through said openings and into said recesses selectively to interconnect the chassis and the truck body in either of said first and second positions of the truck body, said openings being so positioned relative to the first-named means as to permit vertical swinging movement of the truck body relative to the chassis in said first position and to prevent substantial vertical swinging movement of the truck body relative to the chassis in said second position.

7. A toy truck as claimed in claim 6, the truck having rear wheels, the rear wheels being mounted on axles that comprise said last-named means.

8. A toy truck as claimed in claim 6, said forward opening being disposed forwardly and said rearward opening being disposed rearwardly of the rear of the first-named means.

9. A toy truck as claimed in claim 6, the truck body having an end wall mounted for vertical swinging movement about a horizontal axis that is at the lower rear of the truck body in said first position of the truck body.

10. A toy truck as claimed in claim 9, the truck body having an open top in said first position and a closed top in said second position of the truck body.

11. A toy truck as claimed in claim 6, the truck body having opposite end walls, said first recesses being adjacent but spaced a first distance from one end wall, said second recesses being adjacent but spaced a second distance from the other end wall, said first and second distances differing by an amount substantially equal to the distance between the openings of each side member.

12. A toy truck as claimed in claim 11, said first distance being less than said second distance, said one end wall being mounted on the truck body for vertical swinging movement about a horizontal axis, said first recesses being adjacent said axis.

13. A toy truck as claimed in claim 12, the truck body having a top and a bottom one of which is closed and the other of which is open, said axis being adjacent the closed one of said top and bottom.

14. A toy truck as claimed in claim 6, the truck body contacting the first-named means when the truck body is in said first position and the center of gravity of the truck body is to the rear of the vertical plane of the last-named means thereby to prevent excessive vertical swinging movement of the truck body in said first position.

References Cited in the file of this patent

UNITED STATES PATENTS

1,079,245	Hornby	Nov. 18, 1913
1,395,470	Black	Nov. 1, 1921
2,870,566	Hofler	Jan. 27, 1959