June 5, 1923. 1,457,972

A. C. GILBERT

TOY

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Fig. 1.

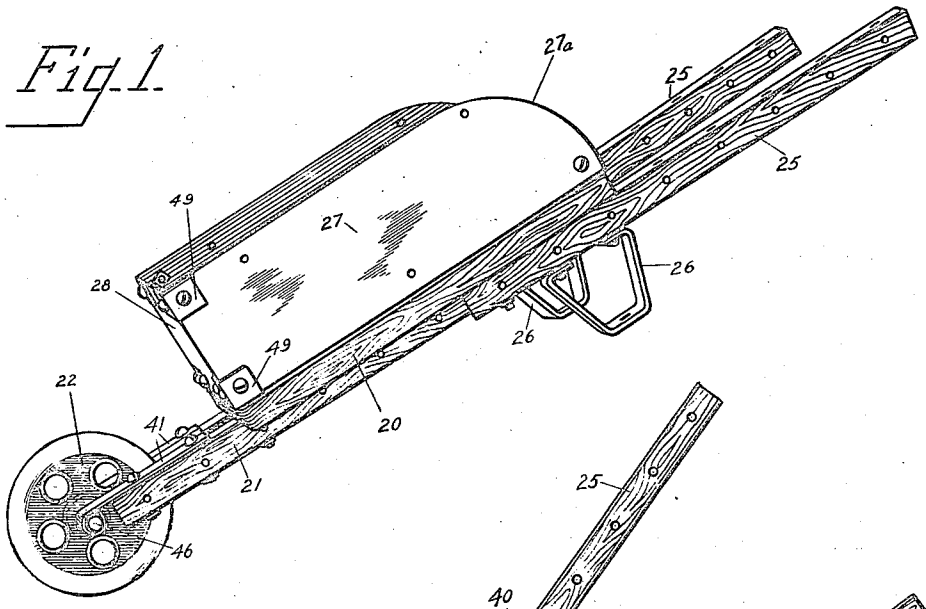
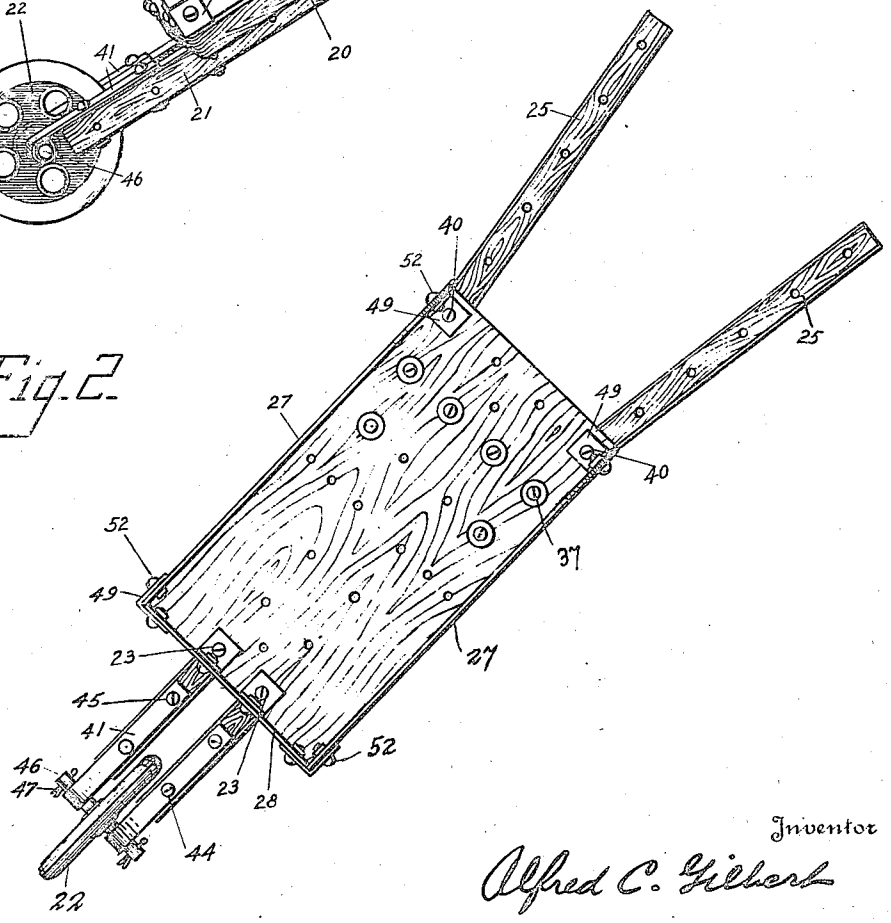


Fig. 2.



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Fig. 3.

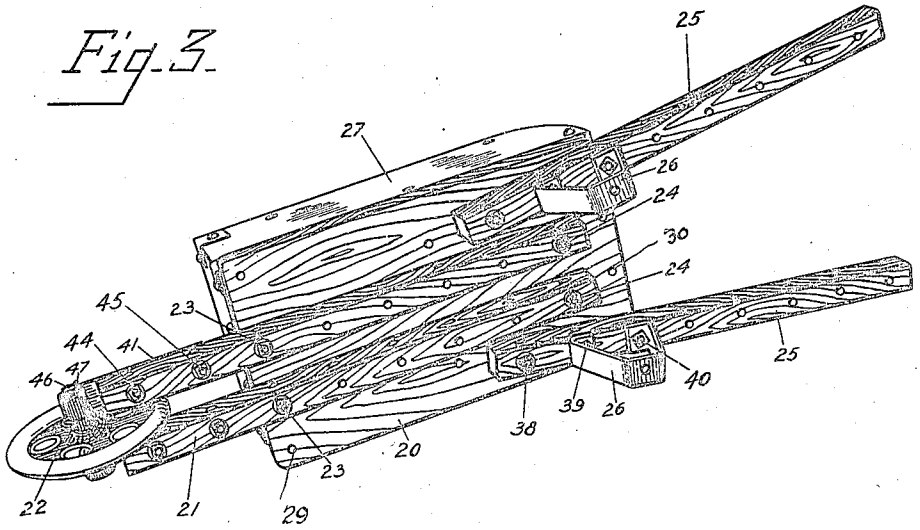


Fig. 3A.

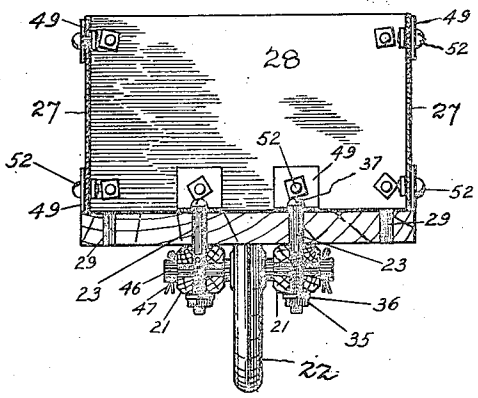
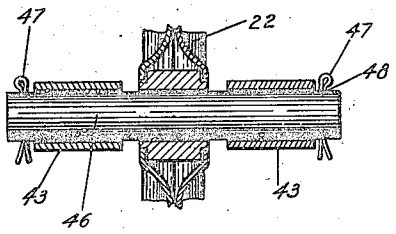


Fig. 4.



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Fig. 5.

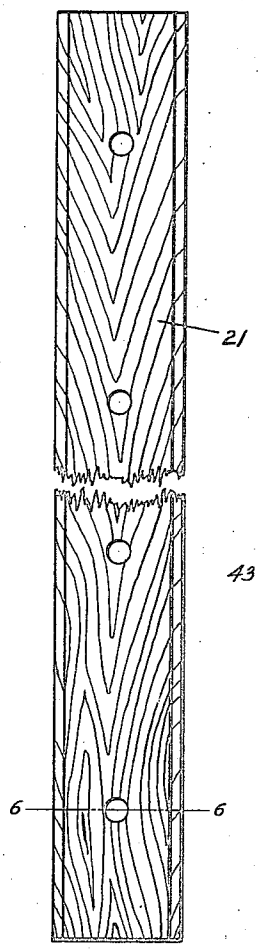


Fig. 7.

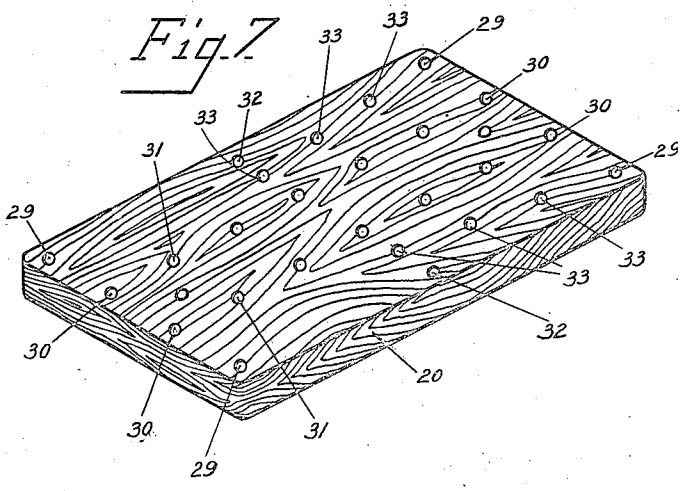
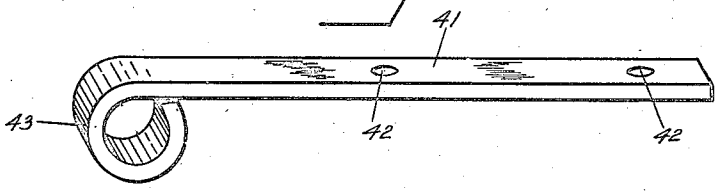


Fig. 8.



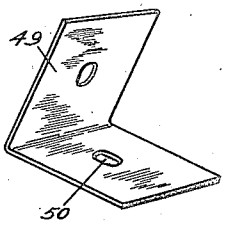
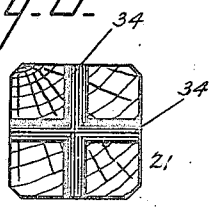


Fig. 9.

Fig. 6.



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Fig. 10.

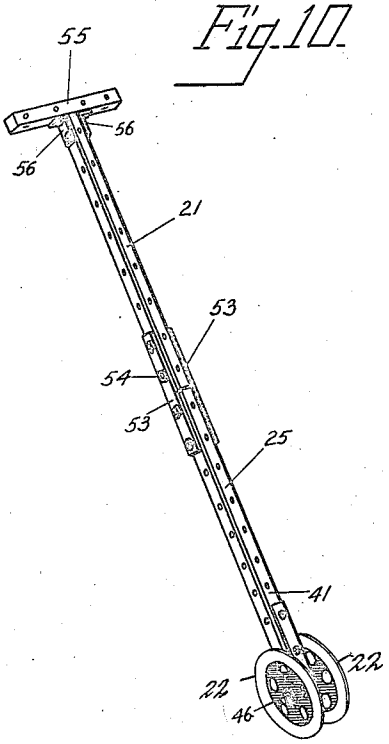


Fig. 12.

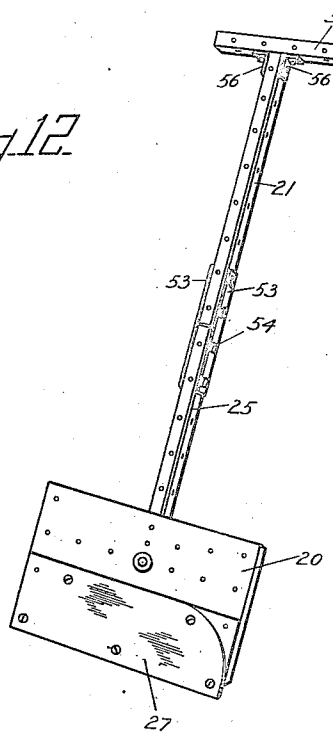
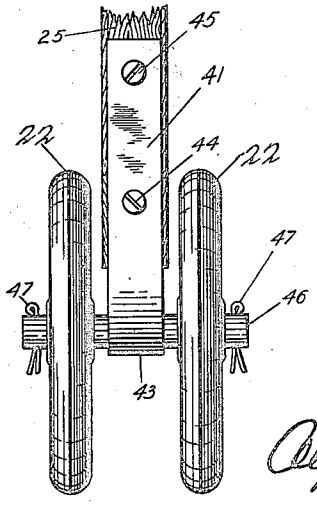


Fig. 11.



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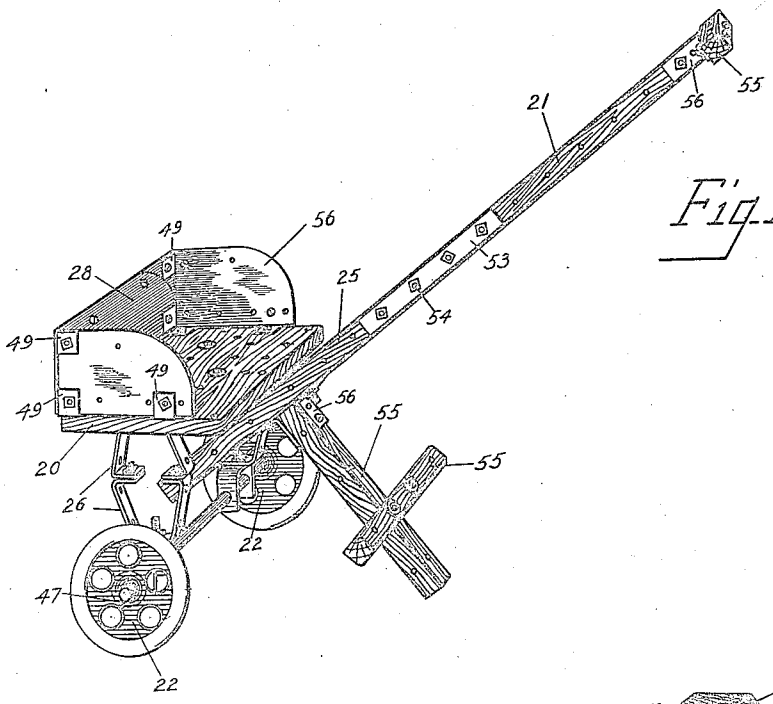


Fig. 13.

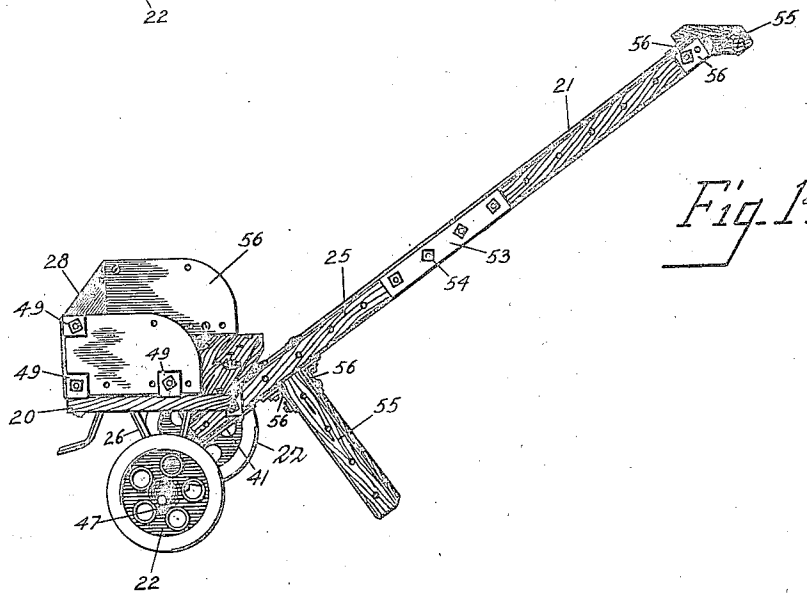


Fig. 14.

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1,457,972

UNITED STATES PATENT OFFICE.

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TOY.

Application filed March 11, 1919. Serial No. 281,970.

To all whom it may concern:

Be it known that I, ALFRED C. GILBERT, residing in New Haven, county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Toys, of which the following is a full, clear, and exact description.

This invention relates to toys, and more particularly to toys of that class termed construction toys, where a set of different parts is used for building up various structures that can thereafter be readily taken apart for building other structures. The toy is usually sold in the form of a building set, comprising a box or other suitable container, containing a plurality of separate parts, and detachable fasteners, such as bolts or the like, for fastening the parts together in various assembled relations.

One of the primary objects of my invention is to provide a toy of this general character, which is so organized and constructed, that full size playthings for children, and more particularly vehicles of various types adapted to support or carry children, can be readily built up in various combinations. More especially, my invention is directed to what might be termed a fabricated wheeled vehicle toy for children, where certain parts, of a relatively small number in the aggregate, are standard to and adapted to be combined in various knockdown toy structures. These structures are largely of the wheeled type and will preferably be of such size as to sustain the weight of one or more children.

One of the more specific objects of the invention is to provide a set of parts which can be readily combined into various knockdown wheeled structures, such as wheelbarrows, hand trucks, kiddie cars, express wagons, coasters, scooters, and the like. All of these various articles can be built readily at different times with a set consisting of a minimum number of parts, and the knockdown structures thus formed are of such size and design, and have such strength and rigidity that they can be used as very satisfactory substitutes for the corresponding permanently built articles now found on the market. The toys which can be built with my set correspond, of course, only in a general way with the toy wheelbarrows, express wagons and the like, now found on the market, and in many instances, the knockdown toys which can be built with my set involve features of construction and design that are superior to those found in permanently built toys serving the same general purpose.

To these and other ends, the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a perspective view of a toy wheelbarrow constructed from certain parts of my toy set.

Fig. 2 is a top plan view of the same.

Fig. 3 is a perspective view showing the bottom of the wheelbarrow.

Fig. 3A is a vertical transverse section through the wheelbarrow body.

Fig. 4 is an enlarged transverse section coincident with the axle.

Fig. 5 is an enlarged detail view of one of the wooden sticks.

Fig. 6 is a section on line 6—6 of Fig. 5.

Fig. 7 is a detail perspective view of the body board, on a somewhat smaller scale;

Figs. 8 and 9 are detail perspective views of certain parts.

Fig. 10 is a perspective view of a so-called toy horse, which can be built with my set.

Fig. 11 is an enlarged detail view of the lower portion of the toy shown in Fig. 10.

Fig. 12 is a perspective view of a snow-shovel embodying certain parts of the set; and

Figs. 13 and 14 are perspective views of different forms of a child's cart built with the new set of parts.

In the description, I shall first explain the detail construction of the wheelbarrow, shown in Figs. 1 to 4 inclusive, and shall then describe the manner of building other toys.

The wheelbarrow comprises a body member or board 20, preferably of wood cut in rectangular shape. The body member is shown in detail in Fig. 7, and it will be observed that it is provided with a plurality of perforations, which will be described in greater detail hereinafter. Attached to the under surface of the body member, and extending forwardly therefrom are yoke pieces 21, between which the wheel 22 is mounted. The wheel is preferably of the kind shown in my application, Serial No. 277,823, and in this application I make no claim to the specific organization of its parts. The yoke members 21 are pref-

erably arranged in parallel relation, as shown in Fig. 3, and they extend rearwardly beneath the body member for a considerable distance, being attached to the body member near the forward edge of the latter by means of bolts 23, and similarly attached to said member in proximity to the rear portion of the latter by bolts 24. These fastening bolts, which are all alike, pass through certain perforations in the yoke members and body member for the purpose of making a suitable detachable connection. The wheelbarrow also has handle members 25, similar to the yoke members, and applied to the under surface of the body member at the rear thereof, in a generally similar manner, by means of bolts similar to the bolts 23, 24. The wheelbarrow legs are constituted by brackets or straps 26, which are bent into V-shape from suitable pieces or straps of metal. In the form shown, the upper ends of the V, which are inturned, are bolted to the under surfaces of the handle members 25, beneath the rear portion of the body, the lower or intermediate portion of each V-shaped strap being adapted to rest on the ground, so as to act as a supporting leg for the wheelbarrow.

The body of the wheelbarrow is completed by means of thin plates of sheet metal detachably secured to the body member 20 by bolts and angle pieces, as hereinafter described. The side plates of the body are shown at 27, and the front plate at 28. The front plate is preferably truly rectangular, but the side plates are preferably curved at their rear ends, as shown at 27^a.

Reverting to the details of the several parts, it will be seen that the body member 20 consists of a wooden board having a plurality of vertical perforations, i. e. holes extending through the same from the upper to the lower surface. There are holes 29 at the four corners, and intermediate holes 30, adjacent the front and rear edges respectively in line with the holes 29. These holes 30 are equidistantly spaced from a longitudinal median line, and their distance from each other is the same as their distance from the corresponding holes 29. The holes 29, 30 at each end of the board are in line with each other, so as to present a transverse series. A longitudinal series of holes 31 is arranged in line with the holes 30 on one side of the longitudinal median line, and a similar series of holes 31 is located symmetrically on the other side of said median line. Midway of the length of the board additional holes 32 are provided at the edges thereof in line with the corner holes 29. An additional series of holes 33 is provided on each side of the longitudinal median line. Each series of holes 33 is in line with the rear corner holes 29, but is directed inwardly at an acute angle, the forward holes 33 of each inclined series being substantially in transverse alignment with the holes 32, and intermediate the corresponding holes 32 and certain of the holes 31. The different holes 31 in each series are spaced apart longitudinally of the board to correspond with the spacing between the holes 29 and the adjacent holes 30, constituting the transverse series of holes; and the different holes 33 of the two inclined series have the same spacing relatively to each other and to the holes 29 at the rear corners.

One of the yoke members 21 is shown in detail in Figs. 5 and 6. Each of these members consists preferably of a wooden piece or stick of approximately square cross-section. The stick is provided with two longitudinal series of perforations or holes 34. Each series of holes 34 extends longitudinally of the stick, the spacing of said holes corresponding to that between the holes of the longitudinal and transverse series of the board 20. The holes 34 of the respective series are arranged at right angles to each other, and corresponding holes intersect, as shown in Fig. 6.

In building up the wheelbarrow in the particular form shown in Fig. 3, the bolts 23 pass through certain intermediate perforations of the sticks 21 and through the openings 30 at the forward end of the body member. The bolts 24, in the particular form shown, pass through the openings 34 at the rear end of the sticks 21, and through the rear openings of the respective longitudinal series of holes 31. The handle members 25 are secured to the board 20 by bolts which pass through the rear corner holes 29 and the two rear holes of the inclined series of holes 33. The fastening bolts are provided with nuts 35 and washers 36, as shown in Fig. 3^a, and the heads of the bolts are provided with slots 37 for the insertion of a screw-driver. It is understood that the bolts 38, 39 and 40 for securing the handle members to the body are similar to the bolts 23, 24, and interchangeable therewith. It will be observed that the same bolts 39, 40, which are used in detachably clamping the handle members to the body, also serve the function of securing the metal straps 26, for which purpose the lower ends of bolts 39, 40, extend through perforations in the upper inturned end portions of the straps. The bolts 23, 40 are also instrumental in securing the metal plates 27, 28 to the body, as hereinafter described.

The wheel 22 is supported from the members 21, by means of looped metal straps 41, one of which is shown in detail in Fig. 8. Each strap 41 is provided at its rear portion with perforations 42, spaced apart to correspond with the spacing of the holes 34, 29, 30 and 31. At its forward end the strap 41 is bent to form a closed loop 43. In the par-

ticular form shown, the straps 41 are applied to the forwardly projecting portions of the members 21 at the upper surfaces of said members by bolts 44, 45 similar to the bolts previously described. These bolts pass through the perforations 42 of the straps, and certain of the perforations 34 at the forward ends of the members 21. The straps extend forwardly from the yoke members, so that the loops 43 are rigidly supported slightly in front of the forward extremities of said yoke members in line therewith, the axes of the loops 43 being directed horizontally and transversely, so as to serve as bearings for an axle 46, on which the wheel 22 is mounted. The axle 46 may conveniently consist of a short section of metal rod adapted to fit rather snugly within the loops 43, which are located on opposite sides of the wheel. The wheel is adapted to rotate about the axle, for which purpose it is provided with a bearing sleeve fitted over the cylindrical intermediate part of the axle. In assembling the parts, the wheel is positioned between the loops 43, and the axle 46 is then passed through the loops and the wheel hub. Suitable fasteners, such as cotter pins 47, are then passed through transverse perforations 48 in the protruding ends of the axle, said cotter pins being adapted to abut the corresponding bearing members 43, so as to limit the endwise movement of the axle, as shown more particularly in Fig. 4. The wheel being interposed between the bearing members 43, and adapted to turn on the axle, it is immaterial whether or not the axle turns in its bearing members.

The plates 27, 28 of the body are secured to each other and to the body member 20 by means of small sheet metal angles 49, one of which is shown in detail in Fig. 9. In each leg of the angle 49 is a perforation 50. Certain of these angles are secured upon the upper face of the body member by suitable bolts. As shown in Fig. 2, the angles at the rear corners are secured to the body member by the bolts 40, previously described. The vertical legs of these angles are secured to the respective plates 27 by short bolts 52. In the form shown the front plate 28 is similarly secured to the body 20 by other angles 49, through which pass the bolts 23 for connecting the members 21 to the body member. The plate 28 is secured to the two plates 27 by upper and lower corner angles 49 secured to the plates by short bolts 52. Various arrangements may be made for securing the plates to the body in a satisfactory manner by means of the angle members and suitable bolts.

It will be apparent that the wheelbarrow structure, just described, may be made very substantial and sturdy by providing parts of the requisite strength. The parts can be readily assembled, and the process of assembling is interesting and instructive. It will be apparent that in making a toy vehicle along the general lines, previously described, considerable scope is given to the builder in the matter of design and possible combinations of parts. A great many changes are possible, for example, in the wheelbarrow structure. The yoke members can be adjusted relatively to the body; the handle members can be adjusted relatively to the body and the other parts, so as to make a barrow of more or less length, as desired; the side plates of the body can be removed if desired; the supporting legs are adjustable; the wheel is adjustable by different application of the loop straps to the yoke members; and various other changes and adjustments can be made according to the wish of the boy or girl.

Not only is my new system applicable, however, to a vehicle generally similar to the wheelbarrow illustrated, but it is also applicable to the building of various other toys and playthings. A few other articles made from parts of the set are shown in Figs. 10 to 14 inclusive. It is obviously impossible to attempt to illustrate all of the various combinations that may be made. Fig. 10 shows what I term a toy horse having an elongated body adapted to be straddled by a child, with wheels on one end and handle-bar on the other end. The body is formed of a short member or stick 21, identical with those previously described, connected to the end of another member 25, identical with the members 25, previously described. A detachable body joint between the members 21, 25 is afforded by connecting straps 53 and bolts 54. The handle-bar 55 is a piece of wood shorter than the members 21, 25, but perforated in the same manner and connected with the member 21 by angles 56 and suitable bolts. This structure has two wheels 22 mounted on an axle 46 similar to the axle previously described. In this case, however, a single loop strap 41 is employed, secured in the previously described manner to the lower end of member 25. Cotter pins 47, like those previously described hold the wheels 22 on their respective end portions of the axle on opposite sides respectively of the strap 41.

Fig. 12 shows a toy snow-shovel made with parts of my new construction set. The handle is similar to the structure shown in Fig. 10. The blade of the shovel is constituted by the body member 20, previously described, to the forward edge of which are applied two of the plates 27, previously described, providing a metallic scraping edge. This assemblage is, of course, detachable, the fasteners being constituted by the bolts of the kind previously mentioned. Figs. 13, 14 show different forms of a toy cart made with certain parts of the new construction set. I

shall not describe these arrangements in detail in the present application, except to call attention to the use in these structures of numerous parts which are the same or identical with parts previously described. The handle or tongue is formed of members 21, 25, interconnected by straps 54, with the crosspiece 55. The board 20 is used as a body, and two of the plates 28 are used at the back in overlapping relation, so as to present in conjunction a true rectangle. The short side plates 56 are parts additional to the parts previously described. V-shaped brackets 26 identical with those previously described, are used for supporting the body on a suitable axle, and on this axle are wheels 22 similar to those previously described. The posts or standards attached to the tongue for holding it off the ground are constituted of members 55, and the foot rest shown in Fig. 13 is also constituted by one of the members 55.

My improved construction toy is so organized, and its parts so chosen, that a maximum number of interesting combinations can be built with a set having a minimum number of parts, the parts being adjustable and interchangeable in many and various relations. The structures, when assembled, are strong and substantial, and can be used as full sized toy vehicles and the like, which are adapted to support the weight of fairly heavy children. The set has such a wide scope that it is extremely useful and a great deal of interest can be obtained from it, at the same time that the child gains valuable knowledge and experience in matters of mechanical construction.

It will be understood that I do not limit myself to the application of my invention to the particular structures herein described, as many changes may be made without departing from the principles involved. In addition to the particular structures described, express wagons, coasters, kiddie cars, toy baggage trucks, go-carts, sleds, and many other articles can be constructed largely or wholly from the individual parts herein shown and described. In most of these toys, I use a perforated body member similar to the member 20, elongated members similar to the members 21 adapted to be connected to the body member in various relations, so as to support the same, or so as to support a wheel or the like from the body member, and a wheel or like member for supporting the structure on the ground. The parts just referred to may, however, be combined in other relations, or omitted, or used with other members without departure from certain aspects of the invention.

I do not claim specifically herein the structures shown in Figs. 10 to 14, as the structures shown in Figs. 10, 11 and 12 are described and claimed in divisional application Serial No. 290,312, filed April 15, 1919, while the carts shown in Figs. 13 and 14 are more fully described and are claimed in divisional application Serial No. 292,877, filed April 26, 1919.

What I claim is:

1. A toy vehicle construction, including a body member, a plurality of interchangeable substantially identical elongated pieces secured to the body member some of them serving as yoke members and others as handle members, straps carried on the ends of said yoke members, a ground engaging device supported by said straps, and means for detachably connecting said yoke members and said handle members to the body member.

2. A toy vehicle construction, comprising a wooden body member, side plates therefor, a plurality of substantially identical elongated members adapted to be connected to the body to serve as yoke members and handle members respectively, all of said members having a plurality of perforations spaced apart so as to register in various relations with perforations of other parts, and the bolts and angle plates for securing the parts together.

3. A toy such as described comprising a perforated body member provided with upper and lower substantially flat surfaces, said perforations being arranged in rows extending at various angles to each other, a pair of forwardly projecting substantially parallel perforated members detachably secured to the lower flat surface of the body, a pair of rearwardly projecting diverging perforated members detachably secured to the lower flat surface of the body, the perforations of said forwardly and rearwardly projecting members equally spaced and registering with certain perforations of the body member, and a ground engaging device detachably secured to said parallel forwardly projecting members.

4. A toy such as described comprising a perforated body member provided with upper and lower substantially flat surfaces, said perforations being arranged in rows extending at various angles to each other, a pair of forwardly projecting substantially parallel perforated members detachably secured to the lower flat surface of the body, a pair of rearwardly projecting diverging perforated members detachably secured to the lower flat surface of the body, the perforations of said forwardly and rearwardly projecting members being equally spaced and registering with certain perforations of the body member, and a ground engaging device detachably secured to said parallel forwardly projecting members, said ground engaging device being mounted upon strap members and thereby supported forwardly of said parallel members.

5. A toy vehicle construction, comprising a body member, a plurality of substantially identical elongated members connected to the body member, some of which project forwardly in parallelism to each other and support a ground engaging device on their forward ends, others being adapted to project rearwardly in diverging relation to serve as handle members, said body member and said elongated member being so perforated that any one of the elongated members may be used interchangeably for any one of the others.

6. In a toy construction, a body member, side plates adapted to be secured thereon, angle plates for securing the side plates to the body member, yoke members and handle members adapted to be secured to the body member, and common means for securing the angle plates and handle members to the body member.

7. In a toy construction, a body member provided with a plurality of series of perforations, and a plurality of elongated members correspondingly perforated to be secured thereto, some of said series of perforations of the body member being disposed in parallelism, and others at an angle to those of another series, whereby the elongated members may be applied to the body member in parallel or in diverging relation.

In witness whereof, I have hereunto set my hand on the 6th day of March, 1919.

ALFRED C. GILBERT.