July 11, 1939. F. BISCHOF 2,165,833

TOY

Filed April 14, 1939

Fig. 1

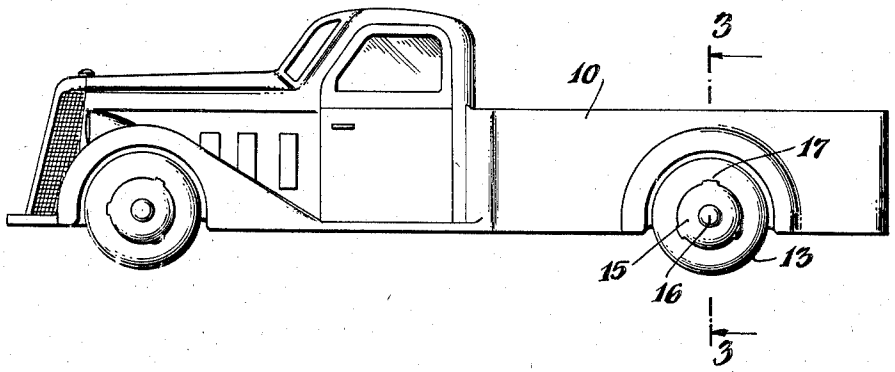


Fig. 2

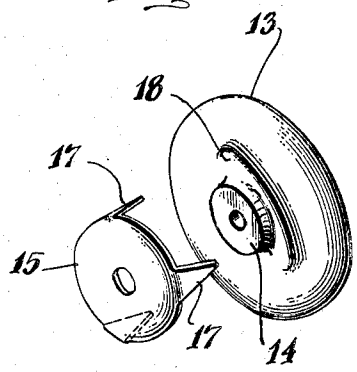


Fig. 3

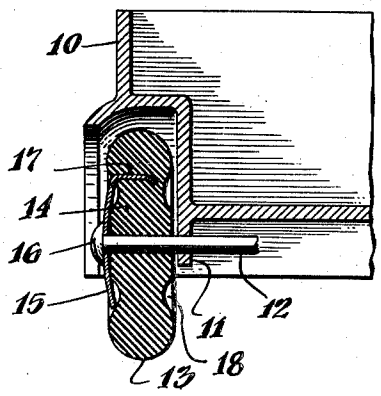


Fig. 4

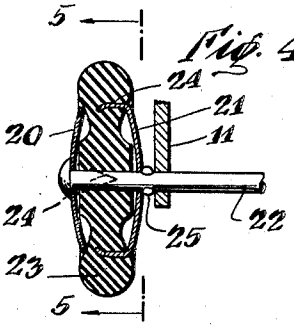
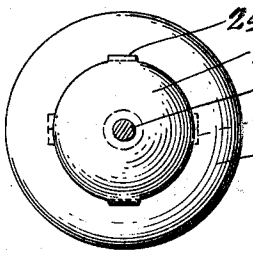


Fig. 5



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TOY

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5 Claims. (Cl. 46—221)

This invention relates to a structurally and functionally improved toy and especially a wheel toy.

It is an object of the invention to furnish an article of this character which may be used by children without the likelihood of attendant noises or the danger of marring finished surfaces, but which at the same time—and even when subjected to abuse—will remain operative.

A still further object is that of furnishing a toy which may be manufactured by quantity production methods and minimum expense, and which toy will embody an extremely attractive appearance.

With these and further objects in mind, reference is had to the sheet of drawings illustrating practical embodiments of the invention and in which:

Fig. 1 is a side elevation of one form of toy embodying the present improved construction.

Fig. 2 is a perspective view of a wheel and hub which may form a part of the same;

Fig. 3 is a transverse sectional view taken along the lines 3—3 and in the direction of the arrows indicated in Fig. 1;

Fig. 4 is a very similar view to Fig. 3 but showing an alternative construction; and

Fig. 5 is a side elevation of the parts as shown in Fig. 4.

In these views the reference numeral 10 indicates the body of a toy which, as shown, may be in the form of a truck. This body may be formed of any desirable material but is preferably die-cast and furnished with downwardly extending axle-supporting portions 11. These portions are formed with openings through which axles 12 may pass, it being of course obvious that the latter may be mounted in one of a number of different manners.

In order that a toy may be presented which may be used by a child with minimum damage to furniture or other polished surfaces, and which aside from this advantage, will not be noisy in use, it is proposed to employ wheels of rubber, or similarly soft material. In other words, these wheels will be formed of this material throughout their bodies and may include, as shown in Figs. 1, 2, 3, 4, and 5, a peripheral portion 13, a hub portion 14, and an intermediate connecting web or part.

The difficulty with units of this nature is that when a child presses vigorously down on them, they—due to their inherent resilience—tend to distort. Thereupon, one is confronted with the situation that, for example, the projecting parts of the vehicle to which these elements are attached, may come directly in contact and be rubbed over a polished surface so that an even worse marring of the same occurs than would have been the case had one not employed wheels of this character.

The present invention aims to retain the advantages of wheels of this character in association with a toy, but at the same time will include a structure such that a child may use and abuse the toy without the danger of scratching surfaces, or without the probability of rendering the wheels non-rotatable. The latter condition, of course, may ordinarily prevail where relatively great pressure is exerted and the wheel is distorted to a point at which it no longer presents a periphery even approximating a circle.

Thus, as shown in Figs. 1 through 3, a hub portion or plate 15 may be interposed between the head or end 16 of the axle and this plate should preferably be of a diameter such that its edge extends into the plane in which the reduced or connecting portion of the wheel extends. Moreover, the plate should preferably be of a concave-convex structure and arranged so that its edges extend inwardly in contact with the wheel portion. In order to secure the parts against movement, the plate may have integrally formed with its body, inwardly extending prongs 17 which are of a length less than the thickness of the wheel body, but at the same time secure the plate against rotation with respect to the wheel.

As will be noted after the plate 15 has been positioned on the wheel, and the prongs 17 projected through the latter, the ends of the prongs are bent inwardly to prevent an accidental loosening of the plate 15. The bending of the prongs may be accomplished by placing the wheel in a press which engages the ends of the prongs and causes them to be bent inwardly. Obviously the same result could be accomplished by subjecting the prongs to a blow, or the squeezing action of pliers, or the like.

In the form of unit shown in Figs. 4 and 5, plates 20 and 21 may encircle the axle 22 to either side of the wheel 23 and these plates may, if desired, be formed merely with a pair of prongs 24. In such case the prongs on the opposite plates are preferably spaced ninety degrees apart, so as to provide for maximum support. Likewise as has been heretofore described in connection with Figs. 1 through 3, the ends of the prongs 24 are bent inwardly after the plates are in position to prevent a retraction thereof.

Also, while the outer plate is retained against movement by the head or end of the axle **22**, the inner plate may be prevented from freeing itself from the wheel by, for example, striking out portions **25** of the axle. Again in this form of unit, it will be seen that the aforementioned advantages follow. It will also be appreciated that in all forms of the invention a construction is provided which materially contributes to the appearance of the toy, and that this construction is furnished by a design which lends itself readily to quantity production methods and minimum expense.

Moreover, in common with the previously described form of the invention, it is preferred in this form that the hub portion or surfaces of the wheel, extend at least into the plane of the peripheral or bead portion thereof, or slightly beyond the same. These extended portions are, of course, accommodated incident to the concave nature of the plates or caps and thus maximum rigidity of the parts is assured without detracting from the desirability of the wheel of this character.

Thus among others the several objects of the invention as aforenoted are achieved. Obviously numerous changes in construction and rearrangement of the parts might be resorted to without departing from the spirit of the invention as defined by the claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is;

1. In a toy, a wheel formed throughout of yieldable resilient material and including a body presenting an enlarged peripheral portion, and a perforated central hub portion,. an outwardly bowed circular perforated plate covering the central and hub portions of said wheel, prongs extending from the edge of said plate and imbedded in the body of said wheel to prevent relative rotation of the latter and plate and to maintain the perforations thereof in alignment, a shaft extending through said perforations, and means associated with said shaft and contacting said plate to prevent withdrawal of the prongs of the latter from said wheel body.

2. In a toy, a wheel formed of resilient yieldable material and including a body presenting a relatively enlarged peripheral bead portion, an inwardly spaced relatively recessed surface and a perforated central hub portion, an outwardly bowed circular perforated plate covering the central and hub portions of said wheel, prongs extending from the edge of said plate and imbedded in the body of said wheel to prevent relative rotation of the latter and plate and to maintain the perforations thereof in alignment, a shaft extending through said perforations, and means associated with said shaft and contacting said plate to prevent withdrawal of the prongs of the latter from said wheel body.

3. In a toy, a wheel formed of resilient yieldable material and including a body presenting a relatively enlarged peripheral bead portion, an inwardly spaced relatively recessed surface and a perforated central hub portion projecting into a plane beyond that of said peripheral portion, an outwardly bowed circular perforated plate covering the central and hub portions of said wheel, prongs extending from the edge of said plate and imbedded in the body of said wheel to prevent relative rotation of the latter and plate and to maintain the perforations thereof in alignment, a shaft extending through said perforations, and means associated with said shaft and contacting said plate to prevent withdrawal of the prongs of the latter from said wheel body, the outwardly extending central portion of said plate accommodating the hub portion of said wheel.

4. In a toy, a wheel formed of yieldable resilient material and including a body presenting an enlarged peripheral bead portion, inwardly spaced relatively recessed surfaces providing the sides of said wheel, a hub portion formed with a perforation and projecting into planes substantially the same as the side edges of such bead portion, plates covering the sides of said wheel and in line with the opposite hub portions thereof, said plates being outwardly bowed to accommodate said hub portion and said plates being each perforated, prongs forming parts of said plates to prevent rotation thereof with respect to said wheels, and to maintain the perforations thereof in alignment, the prongs in the different plates being arranged out of line with respect to each other, a shaft extending through said perforations, and means associated with said shaft and bearing against the exterior plate faces to prevent withdrawal of the prongs of the latter from said body.

5. In a toy, a wheel including a body formed of resilient yieldable material, a peripheral portion which under the action of pressure tends to be materially distorted, an inwardly spaced relatively recessed surface forming a part of said wheel, a central perforated hub portion also forming a part of said wheel, a perforated plate having its edge disposed in line with the recessed surface of the wheel and lying adjacent the inner surface of said peripheral portion and in contact with said hub portion, prongs extending from said plate and imbedded in said wheel at points adjacent the inner surface of the peripheral portion thereof, an axle extending through said plate and hub perforations, and means associated with said wheel to prevent an axle movement of said plate with respect to said wheel body and whereby when pressure is applied to the periphery of said wheel and tends to distort the same, the edge of said plate will rigidify such peripheral portion.

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