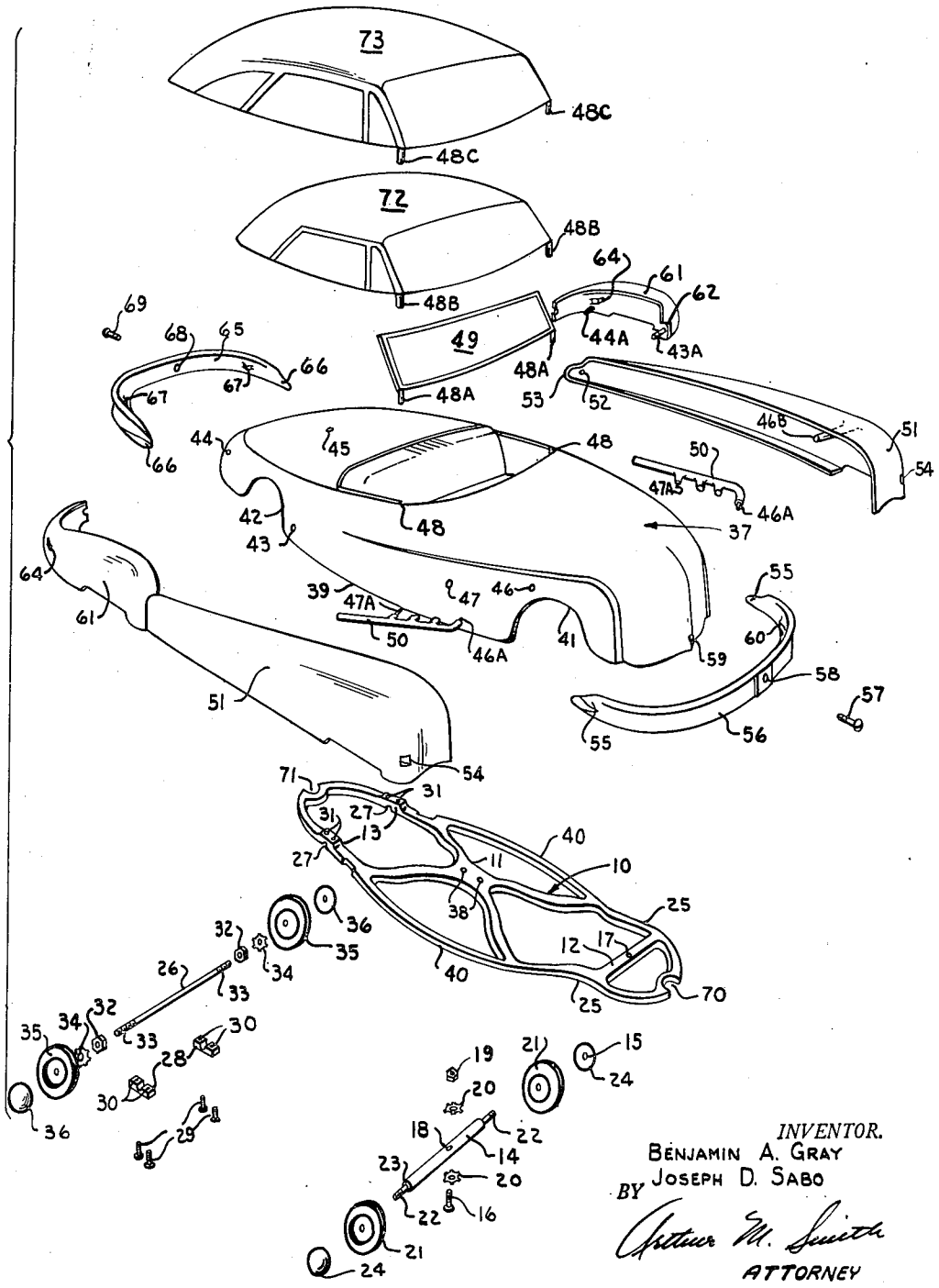
Feb. 26, 1952 B. A. GRAY ET AL 2,587,142

MODEL AUTOMOBILE ASSEMBLY KIT

Filed March 28, 1947 2 SHEETS—SHEET 1

FIG. 1



INVENTOR.
BENJAMIN A. GRAY
BY JOSEPH D. SABO
Arthur M. Smith
ATTORNEY

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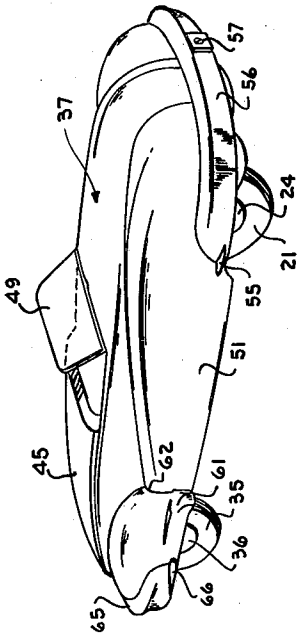

FIG. 3

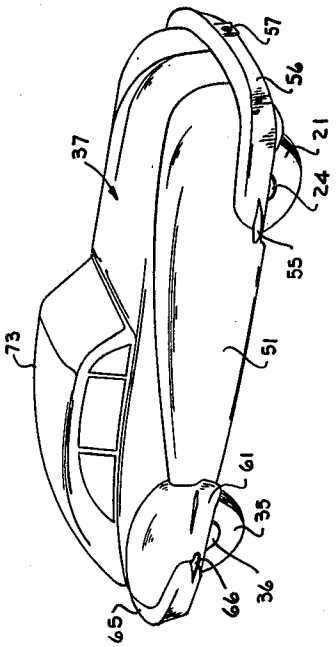

FIG. 5

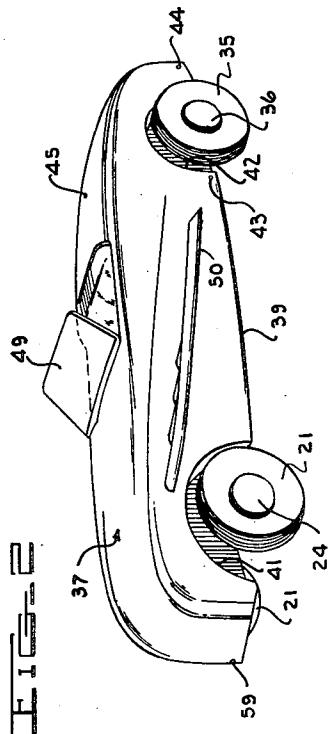

FIG. 2

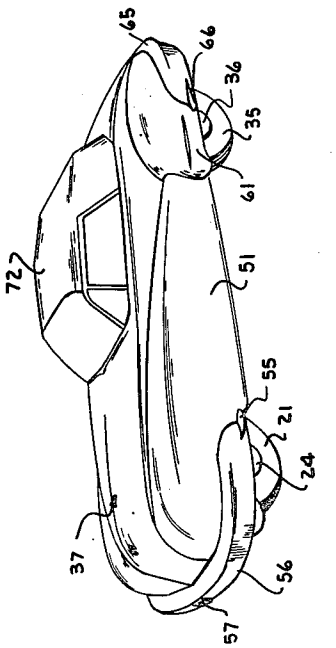

FIG. 4

INVENTORS
BENJAMIN A. GRAY
JOSEPH D. SABO

BY

Arthur M. Smith
ATTORNEY

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MODEL AUTOMOBILE ASSEMBLY KIT

Benjamin A. Gray and Joseph D. Sabo, Detroit, Mich., assignors to Toy Founders, Inc., Detroit, Mich., a corporation of Michigan

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5 Claims. (Cl. 46—17)

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The present invention relates to a toy automobile assembly kit and has for its primary objects:

(1) To provide a toy automobile assembly kit having a variety of interlocking parts which may be selectively assembled in various combinations to provide toy automobiles of various modern and attractive designs;

(2) To provide improved interlocking engagements for detachably securing the various parts in the kit to each other with the minimum of screw-threaded fastenings so as to facilitate the assembly and rearrangement of the parts and to form various sturdy toy automobiles adapted to withstand the normally expected abuse received by a child's toy; and

(3) To provide a novel interlocking means whereby detachable front fenders extending essentially the length of the toy automobile are held in place at their forward portions between lateral wings of a detachable front bumper and are held at their rearward portions by detachable rear fenders, which in turn are held in place between lateral wings of a detachable rear bumper; and whereby the bumpers are held in positive alignment in the assembled position with their adjacent fenders.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

Fig. 1 is a view showing a layout of the various parts in perspective of a toy automobile assembly kit embodying the present invention.

Fig. 2 is essentially a perspective side view of a sport runabout model that may be constructed from the parts of the assembly kit shown in Fig. 1.

Fig. 3 is essentially a perspective side view of a sport roadster model that may be constructed from the parts of the assembly kit shown in Fig. 1.

Fig. 4 is essentially a perspective side view of a convertible coupe model that may be constructed from the parts of the assembly kit shown in Fig. 1.

Fig. 5 is essentially a perspective side view of a sedan model that may be constructed from the parts of the assembly kit shown in Fig. 1.

Before explaining the present invention in detail it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being

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practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

A particular toy automobile assembly kit embodying the present invention is shown by way of example in Fig. 1, wherein a basic chassis, indicated generally by the numeral 10, provides a frame upon which the other toy automobile parts in the kit may be selectively mounted in a number of combinations to make various toy automobile models. The parts in the kit may be suitably formed from metal, plastic, hard rubber, or preferably a combination of these materials.

The open frame structure of the chassis 10 has the central raised portion 11, the front axle support 12, and the rear axle journal supports 13. The front axle 14 pivots about the bolt 16 which extends through the bolt holes 17 and 18 in the front axle support 12 and front axle 14, respectively, and is held in place by the nut 19. The pair of lock washers 20 are preferably placed around the bolt 16 above and below the front axle support 12 to prevent loosening of the nut 19 as the front axle 14 pivots during steering.

The two front wheels 21 are journaled on the threaded spindles 22 at opposite ends of the front axle 14 adjacent the corresponding shoulders 23 provided by the enlarged central portion of the front axle 14, and are held in place by the threaded front hubcaps 24 which screw on the extremities of the threaded spindles 22. It is to be noted that the threaded portion 15 of each front hubcap 24 does not extend completely through the hubcap. Thus the lateral exterior surface of each hubcap 24 is unbroken. Sufficient play is provided for the front wheels 21 between the corresponding shoulders 23 and front hubcaps 24 to permit the front wheels 21 to rotate freely on their respective spindles 22. The restriction 25 is provided for the wheels 21 at the forward portion of the chassis 10 to permit limited pivotal steering movements of the front axle 14 about the bolt 16.

The rear axle 26 fits within the half cylindrical bearing surfaces 27 carried by the read axle supports 13 and is clamped in place by the two bearing collars 28. The plurality of bolts 29 pass through the bolt holes 30 of the collars 28 and the bolt holes 31 of the supports 13 and hold the collars 28 in place, either by means of nuts, not shown, or by screwing into threaded portions of the bolt holes 30 or 31.

Each of the two rear wheel assemblies comprises the nut 32 which is screwed on the corre-

sponding threaded end portion 33 of the rear axle 26, being followed by a lock washer 34, a rear wheel 35, and rear hubcap 36 in that order, the latter being similar to the front hubcaps 24 and being tightly screwed on the threaded end 33 to cap the corresponding end of the rear axle 26. The nut 32 is then tightened against the lock washer 34 to clamp the wheel 35 against the hubcap 36. Thus clamped, the rear wheels 35 turn as a unit with the rear axle 26, which latter is journaled in the bearings provided by the surfaces 27 and collars 28.

The basic body structure, indicated generally by the numeral 37, is adapted to be detachably mounted on the chassis 10 and is bolted thereto by bolts, not shown, which pass through the bolt holes 38 of the central raised portion 11. The body 37 is held in proper alignment on the chassis 10 by the lower edges 39 of the body side structures which snugly overlap the chassis side portions 40.

The body 37 and the accessory parts of the kit are designed to permit assembly of models symmetrically about their longitudinal vertical median planes. Accordingly, where this description refers to features of one side of the automobile models, the corresponding features also exist on the other side. The body 37 is also essentially a complete sport runabout body in itself with built-in front fenders 41 and rear fenders 42. Also provided by the body 37 are the dowel holes 43 and 44 in each rear fender 42, the dowel hole 45 in the rear deck, the dowel holes 46 and 47 diagonally placed in each front fender 41 in parallelism with the sloping lines thereof, and the two dowel slots 48 in the lateral rear portions of the cowl.

The windshield 49 is preferably of transparent plastic material and provides the two downward extending dowel pins 48A which fit into the dowel slots 48 and secure the windshield 49 in an upright position to the body 37. The dowel holes 46 and 47 are adapted to receive the pins 46A and 47A, respectively, of the pair of external exhaust manifolds 50, which latter are thus detachably mounted laterally to the body 37. It is preferred that each pin 47A, for example, has a threaded end which will project through the hole 47 and receive a nut to positively secure the exhaust manifold 50 to the body 37.

Upon assembling the wheels to the chassis 10 as previously described, the sport runabout or racing model shown in Fig. 2 may be completed by mounting the body 37 to the chassis 10 and by mounting the windshield 49 and exhaust manifolds 50 to the body 37 as indicated above.

The sport roadster model of Fig. 3 may be assembled upon replacing each exhaust manifold 50 by a front fender 51, which latter provides the dowel pin 46B for insertion into the dowel hole 46. It is to be noted that the front fenders 51 are sufficiently oversize to cover the fenders 41. Each fender 51 also provides a dowel hole 52 which is alignable with the corresponding dowel hole 43, the rearward projection 53, and the forward bumper retaining notch 54.

When the front fenders 51 are assembled to the body 37 with the dowel pins 46B in the dowel holes 46, the forward portion of each fender 51 is prevented from lateral displacement by the lateral wings 55 of the front bumper 56 which curve around the fenders 51 as shown in Fig. 3. The front bumper 56 is secured to the front of the body 37 by the bolt 57 which extends through the bolt holes 58 and 59 of the mid-portion of the bumper 56 and forward central portion of the body 37, respectively. A projection 60, located on the inside of the bumper 56 adjacent each wing 55, interlocks with the corresponding bumper retaining notch 54 and rigidly holds the bumper 56 in its proper position.

The front fenders 51 extend essentially the length of the body 37 toward the rear fenders 61. Each rear fender 61 provides a cutaway portion 62 which receives the rearward projection 53 of the corresponding front fender 51, the threaded dowel 43A which extends through the hole 43 to receive a nut on the inside of the body 37 and to hold the fender 61 positively in place, the dowel 44A which fits into the hole 44, and the bumper retaining notch 64. Upon assembling the rear fenders 61 in place with the dowels 43A and 44A within the respective dowel holes 43 and 44, the rear projection 53 of each front fender 51 is held against lateral displacement between the body 37 and the sides of the rear fender 61 by the threaded dowel 43A which also passes through the dowel hole 52 of the front fender 51. The rear bumper 65 also provides lateral wings 66 which curve around the rear fenders 61, the projections 67 which interlock with the bumper retaining notches 64 and securely hold the bumper 65 in position, and the centrally located bolt hole 68 for the bolt 69, which latter extends through the hole 68 and a bolt hole, not shown, in the rear central portion of the body 37 and is secured as, for example, by a nut to hold the bumper 65 to the body 37. The notches 70 and 71, at the front and rear, respectively, of the chassis 10 are provided for the inward projections of the bolts 57 and 69, respectively, and for the nuts which secure these bolts.

The roadster of Fig. 3 may be readily converted into the convertible coupe of Fig. 4 merely by replacing the windshield 49 by the convertible top 72 which is provided with depending dowel pins 48B to fit within the dowel slots 48, and a dowel pin, not shown, for the dowel hole 45. The coupe of Fig. 4 may be readily converted into the sedan model of Fig. 5 by replacing the top 72 by the sedan top 73, which is similarly provided with depending dowel pins 48C for the dowel slots 48, and a dowel pin, not shown, for the dowel hole 45.

Variation in the color between the tops 72 and 73 and body 37 is provided where desirable. Both tops 72 and 73 are preferably formed from transparent plastic. The opaque portions of the tops 72 and 73 are painted the color desired, leaving the windshield and window portions transparent.

An important feature of the present invention lies in the facility with which the various toy automobile parts may be assembled or detached from each other by virtue of the various dowel pins provided by certain parts of the kit for mating with corresponding dowel holes of other parts of the kit. By the interlocking of selected parts as described, the entire assembly holds itself together as a sturdy unit with the minimum of screw-threaded fastenings. The design and arrangement of the parts shown permit several modern and attractive toy automobiles to be readily and easily constructed even by small children. At the same time, a sturdy toy is provided having interlocking parts which avoid accidental disengagement from the assembled model.

The fenders 51 and 61 are preferably of a different color than the body 37 to permit the assembly of two-toned models. The oversize, gracefully curved fenders and bumpers, together with the long sloping lines of the front fenders

51, give the appearance of luxuriance, provide a sporting low center of gravity, and also extend the front fenders 51 rearwardly to a position where they are held against displacement by the dowels 43A of the rear fenders 61. The bumpers 56 and 65 not only contribute to the attractive modern design of the assembled models, but also provide important structural features, particularly the projections 60 and 67 which interlock with the corresponding notches 54 and 64 to hold both the bumper and fenders in their proper relative positions.

We claim:

1. A toy automobile assembly kit having a variety of parts selectively combinable to provide toy automobiles of various models and including a chassis with detachably mounted wheels, a basic body structure detachably mounted on said chassis, rear fenders detachably mounted to said body structure, forward cutaway portions of said rear fenders, a rear bumper detachably mounted to said basic body structure, front fenders detachably mounted to said body structure, the rearwardly extending portions of said front fenders being projected into the said forward cutaway portions of said rear fenders and being held against lateral displacement between said rear fenders and said body structure, a front bumper detachably mounted to said basic body structure, means to prevent lateral displacement of said rear fenders and the front portions of said front fenders and including lateral wings provided by said rear and front bumpers, respectively, and curved around portions of said and front fenders, respectively.

2. A toy automobile assembly kit as claimed in claim 1 and being further characterized in that means are provided to hold said bumpers and fenders in positive alignment with each other in their assembled positions, said means including bumper supporting notches provided by said fenders and projections provided by said bumpers to interlock with said bumper supporting notches.

3. A toy automobile assembly kit including a chassis, a basic body structure mounted on said chassis, rear fenders detachably mounted on said body structure and having forward cutaway portions, front fenders detachably mounted on said body structure, the rearwardly extending portions of said front fenders being projected into the said forward cutaway portions of said rear fenders and being held against lateral displacement between said rear fenders and said body structure, and means to prevent lateral displacement of said rear fenders and the front portions of said front fenders.

4. A toy automobile assembly kit including a chassis, a basic body structure mounted on said chassis, rear and front fenders detachably mounted on said body structure, rear and front bumpers detachably mounted on said basic body structure, and means to prevent lateral displacement of said rear fenders and said front fenders and including lateral wings provided by said rear and front bumpers, respectively, and curved around portions of said rear and front fenders, respectively.

5. A toy automobile assembly kit according to claim 4 and further characterized in that bumper supporting notches are provided by said fenders and projections are provided by said bumpers to interlock with said bumper supporting notches to hold said bumpers and fenders in positive alignment with each other in the assembled position.

BENJAMIN A. GRAY.
JOSEPH D. SABO.

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