Feb. 1, 1966 J. HAENLE, JR 3,232,420

INTEGRATED PACKAGED PARTS CONSTRUCTION

Filed Aug. 30, 1963 2 Sheets-Sheet 1

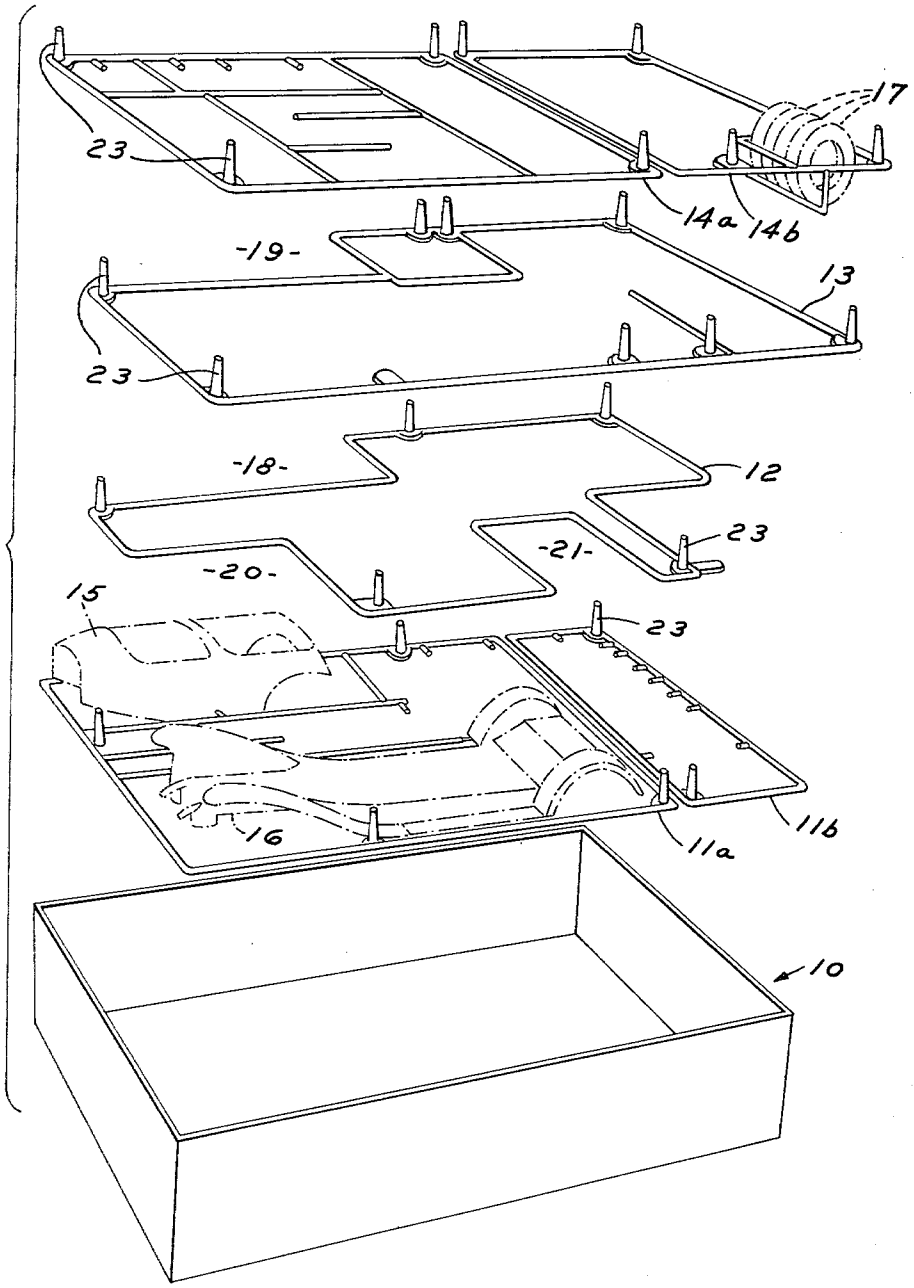


FIG. 1

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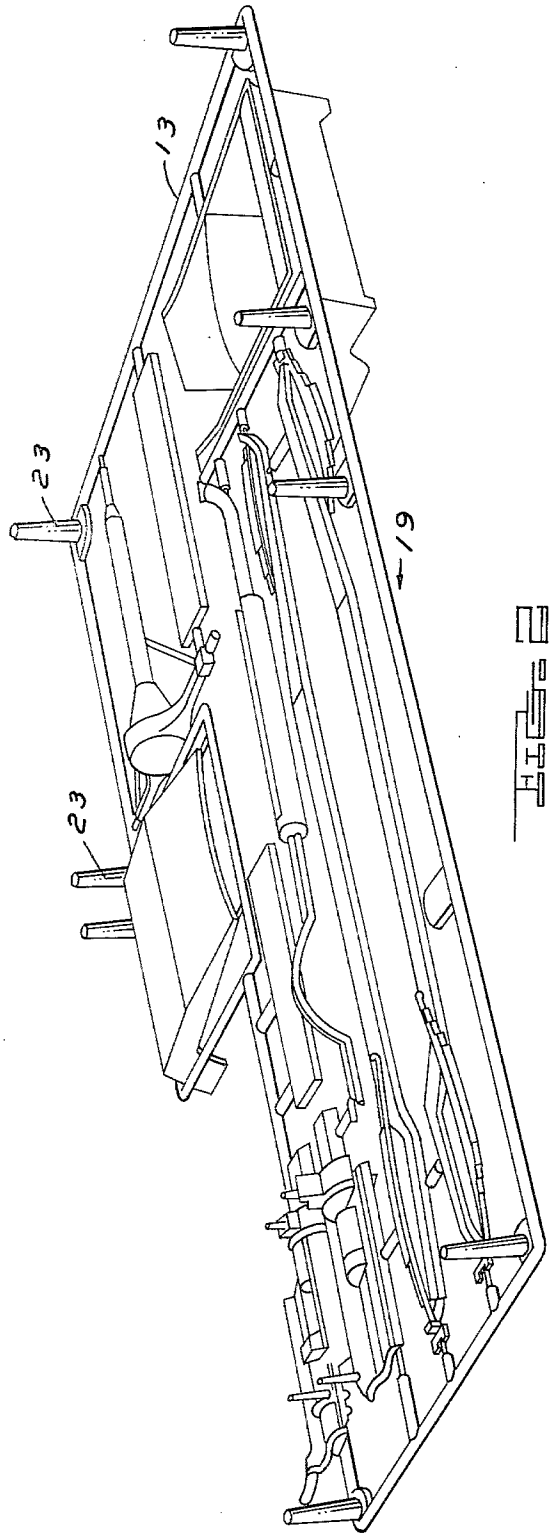


FIG. 2

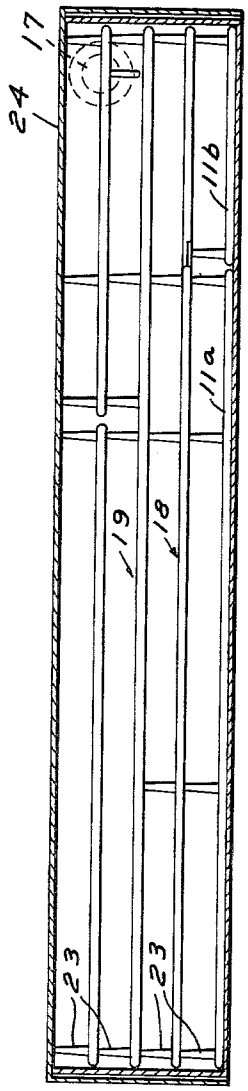


FIG. 1

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United States Patent Office 3,232,420
Patented Feb. 1, 1966

3,232,420

INTEGRATED PACKAGED PARTS CONSTRUCTION

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Filed Aug. 30, 1963, Ser. No. 305,649
3 Claims. (Cl. 206—46)

The invention relates to an integrated packaged parts construction and more particularly to an integrated stacked frame-parts package construction particularly adapted for such products as injected molded plastic model kits wherein successive layers of integral part frames are designed for unitary packaging providing predetermined spacing between frames, coordinated cavities for multi-layer parts, either integral or inserted, and/or provisions in the part frames for holding auxiliary parts providing a fully integrated packaged parts construction.

Part frames constructed in accordance with the present invention can be packaged in a conventional cardboard box or other suitable container by merely stacking the frames in proper order within the box, inserting any loose parts as required within corresponding special frame openings thereby providing numerous advantages. For example, the appearance of the packaged parts is greatly enhanced as compared to random packaging of loose parts; parts are protected against damage in handling; inspection to determine that all parts are included is greatly facilitated for manufacturer, distributor and customer alike; and the overall sales appeal of the product is greatly enhanced over the comparable product packaged by conventional means. The foregoing and other objects of the invention will be more fully understood from the following description of a typical embodiment as illustrated in the accompanying drawings wherein:

FIG. 1 is an exploded perspective view of a plurality of part frames with parts generally omitted to clarify the packing relationship of the frames relative to a box enclosure;

FIG. 2 is an enlarged perspective view of one of the part frames illustrated in FIG. 1, shown complete with all plastic model car parts integrally molded therein; and

FIG. 3 is a sectional side elevation through the completely packaged closed box of the kit, showing the packaged relationship of the frames per se with parts generally omitted to more clearly illustrate the stacked relationship of the frames.

Referring to FIG. 1 it will be seen that a conventional cardboard box **10** of appropriate size is employed to hold the four-high stack of part frames **11***a*, **11***b*, **12**, **13**, **14***a* and **14***b*. Such part frames are made by injection molded plastic techniques complete with numerous integrally molded parts for a model automobile kit. In order to more clearly illustrate the interrelationship of the part frames, in FIG. 1 the only parts shown are the car body **15**, underbody **16** and rubber tires **17**. It will be seen that the height of the body **15** integrally molded in the lowermost frame **11***a* is such as to project through the next two frame layers **12** and **13**, provision for which is incorporated by openings **18** and **19** respectively, all integral parts of the respective frames being confined to the enclosure within the boundaries of the frame (see FIG. 2 for example, illustrating the frame **13** complete with all integral parts). The underbody **16** incorporates front and rear fenders projecting upwardly through only one adjacent frame **12** with appropriate frame openings **20** and **21** being provided therefor. None of the integral parts of the intermediate frames **12** and **13** project into

the lowermost frames **11***a*, **11***b* or uppermost frames **14***a*, **14***b*, which accordingly extend to the full internal rectangular dimensions of the box **10**.

Each of the respective frames may be substantially filled with integral parts in the same manner as frame **13** as illustrated in FIG. 2, care being taken to design parts of each frame with adequate clearance for the stacked relationship with adjacent frames. As illustrated in FIG. 3, suitable spacers **23** integrally molded in the frames assure a proper stacked relationship of the respective frames when packaged within the box **10** with the box cover **24** placed thereover. It will be seen that the frames may be designed to accommodate any loose parts such as the rubber tires **17** in a manner confining the same in the fully packaged unit against dislodgement from their space.

From the above description of a typical embodiment it will be understood that the present invention carries the concept of multi-part kit design beyond the point of providing individual parts which may be assembled into a unitary product, and beyond the provision of multi-part frames having numerous parts integrally molded in a single unitary frame from which they can be separated for assembly, and extends the concept of parts kit design to the ultimate completely packaged kit with successive frames adapted to nest on each other incorporating appropriate cavities for multi-layer parts as well as holders within the frame for auxiliary parts. While the illustrated embodiment involves injection molded plastic frames with integral plastic parts, it will be understood that the technique can also be applied to die castings, metal stampings and the like where multiple parts are formed integrally with and separable from a plurality of inter-related stackable unitary frames. It will also be understood that the present illustrated embodiment is merely typical of a specific application for the invention and that the invention is equally applicable to other types of part kits and that numerous modifications may be resorted to without departing from the scope of the invention as defined in the following claims.

I claim:

1. A multiple parts kit comprising a plurality of different layers of irregularly shaped multiple parts frames, each of said frames having a plurality of separable parts integrally formed therein said multi-layer frames having special recesses, said frames being stacked in pre-determined inter-related order with separable parts of one frame nesting in said recesses of another frame, a container enclosing said frames in a unitary package, said frames and container confining each of said parts to a pre-determined space and against any substantial relative displacement.

2. A multiple parts kit as set forth in claim 1 wherein certain of said frames have integral spacers registering against an adjacent frame.

3. A multiple parts kit comprising a rectangular container, a plurality of different layers of multiple parts frames, each of said frames having a plurality of separable parts integrally formed therein, said frames being stacked in pre-determined inter-related order in said container fitting closely within the internal sidewalls thereof, said frames including integral spacers maintaining a predetermined spaced relationship therebetween, certain of said frames having a special cavity opening construction, at least one multi-layer part nesting within said special cavity opening and a cover for said container completing the enclosure of said part frames as a completely enclosed parts kit package wherein each part is confined to a predetermined space and against any substantial relative displacement.

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