

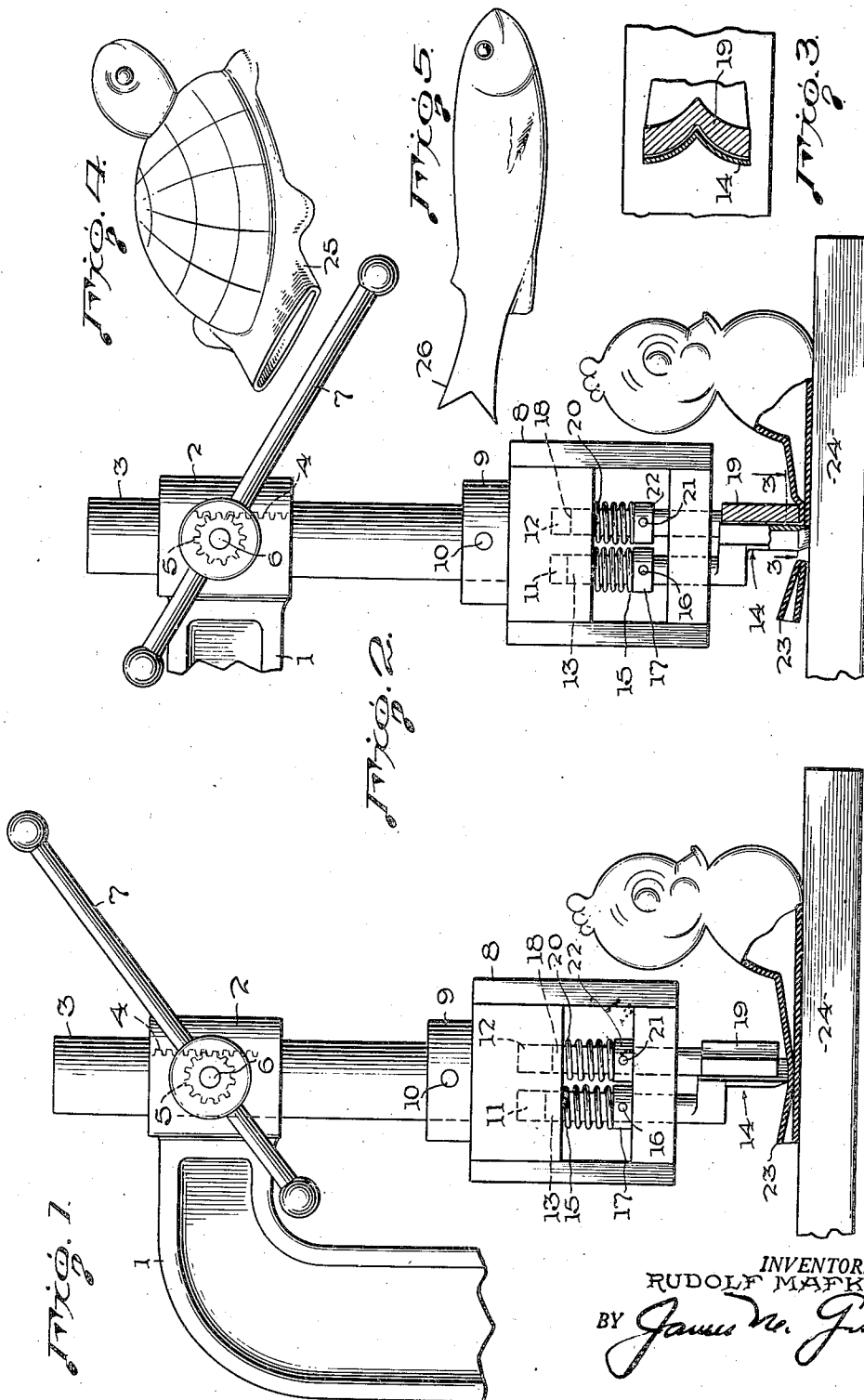
Aug. 9, 1949.

R. MAFKO

2,478,771

PROCESS FOR MANUFACTURING DIPPED TOYS

Filed March 25, 1948



INVENTOR.
RUDOLF MAFKO
BY *James M. Jones*

ATTORNEY

UNITED STATES PATENT OFFICE

2,478,771

PROCESS FOR MANUFACTURING DIPPED TOYS

Rudolf Mafko, Elkton, Md., assignor to Bayshore Industries, Inc., Elkton, Md., a corporation of Maryland

Application March 25, 1948, Serial No. 16,938

2 Claims. (Cl. 18—58.7)

1

This invention relates to a new and improved process for making dipped rubber toys, and is more particularly concerned with a new process for closing the openings or apertures formed in dipped rubber toys as a result of the dipping operation.

In the past, dipped rubber toys have been made by first providing a model or form, made of suitable material such as porcelain or aluminum and provided with an extended rod or projection beyond the external contour of the rubber toy to be formed by the dipping process. The form is then suspended by this projection into a conventional bath of rubber latex and, after the dipping process is complete and the coated form withdrawn from the bath, the rubber toy is stripped from the form. The toy, after stripping, has an excess rubber sleeve or appendage which formed on the surface of the projection during the dipping operation. This sleeve or appendage must be tucked in or inverted into the body of the rubber toy and a plug of suitable material, such as a piece of wood or a whistle, inserted to close the opening.

There are several inherent disadvantages attending prior art procedures of the foregoing nature. First of all, such a process is time-consuming. Secondly, there is the added expense incurred by providing plugs, whistles and the like to close the opening in the toy. Finally, and probably more important, there is considerable excess stock which must be inverted or tucked into the inside of the finished article. This is a wasteful procedure.

It is accordingly one of the salient objects of the present invention to provide a new process for closing openings in dipped rubber toys, which process is extremely simple and economical.

A further object of the invention is to eliminate entirely the use of plugs and the like in closing the openings in dipped rubber toys.

It is a still further object of the invention to provide a process wherein no substantial excess stock is employed which must be inverted or tucked into the inside of the toy.

It is a still further object to provide a process of closure of the type indicated wherein the appendage or sleeve remaining after the dipping operation, when trimmed and sealed, and becomes a definite part of the anatomy of an animal-simulated, hollow rubber toy.

It is a further object to produce a new hollow rubber toy having an integral reinforcement provided through the practice of the process of the invention.

2

Briefly and succinctly stated, the process involves the dipping of the form into a bath of latex, removing the form after an appropriate period, stripping the formed rubber toy from the form and then substantially simultaneously cutting or trimming the appendage and sealing the opening left in the toy to provide an integral seal which becomes a definite part of the anatomy of the toy. It must be pointed out that this feature of providing an integral seal which is in and of itself a definite part of the anatomy of the toy is a very salient feature of this invention. Several distinct advantages are obtained through this procedure. Firstly, only a small appendage need be formed as compared to the appendages of prior processes which must be large enough to be manipulated and tucked into the body of the toy. Secondly, the sealed closure in the finished toy is not superfluous stock nor is it a simple rim or flange with no meaning. It becomes an integral part of the finished toy, serving, among other things, to impart a certain degree of rigidity to the hollow toy. Here it should be stated that, in the dipping process, only those forms are used which provided an opening at that part of the anatomy of the toy, such as a toy animal, whereby the appendage formed is such that the excess rubber, when trimmed and sealed in accordance with the invention, becomes an actual part of the anatomy of the toy, such as the tail of a bird, the tail of a beaver, the mane of a horse, the rim of a turtle shell, the tail of a duck, the fin of a fish, etc. Stated differently, the method of closure of the present invention is only applicable to rubber toys which lend themselves to fin type structure of the foregoing character.

In illustrating the procedural steps of the present invention, reference is hereby had to the accompanying drawings in which like reference characters denote like parts and in which:

Fig. 1 is a side elevation of the cutting and sealing apparatus, partly in section, showing the operative parts in position immediately prior to the cutting and sealing operation;

Fig. 2 is a side elevation of the cutting and sealing apparatus, partly in section, showing the operative parts in position immediately after the cutting and sealing operation;

Fig. 3 is a section taken through line 3—3 of Fig. 2; and

Figs. 4 and 5 are perspective views showing several forms of toys cut and sealed in accordance with the process of the invention.

Referring now more particularly to Figs. 1 and 2 of the drawings, the apparatus employed in

3

carrying out the process is what might be termed a modified arbor press having a stationary standard 1, with integral sleeve 2 through which an arbor plunger 3 reciprocates. Reciprocation of this arbor plunger 3 is effected in a conventional manner by providing the plunger with a rack bar 4 which cooperates with gear 5 pivoted at 6 and turned through movement of handle 7. Arbor plunger 3 carries at its lower end a cutter-sealer head 8 attached through integral collar 9 and set screw 10. This cutter-sealer head is provided with appropriate vertically disposed channels 11 and 12. In channel 12 is positioned a rod 13 carrying at the bottom thereof, cutting blade 14. Tension in the cutting blade rod 13 is attained through the use of coil spring 15 whose tension may be adjusted through the use of a set screw 16 in collar 17. Similarly, in channel 11 is positioned a sealing bar rod 18 carrying at the bottom thereof a sealing bar 19. Tension in the sealing bar rod 18 is attained through the use of coil spring 20 whose tension may be adjusted through the use of a set screw 21 in collar 22.

Cutting blade 14 is of a configuration which is desired in the sealed portion of the finished rubber toy. Likewise, the configuration of the sealing bar 19 is of similar configuration. In other words, in the rubber toy shown in Figs. 1 and 2, a simulated duck, having a fan tail, the cutting blade 14 and sealing bar 19 are shaped to provide the desired fan tail configuration. In this connection it should be mentioned that cutting blade 14 and sealing bar 19 may be interchangeable with other forms of cutting blades and sealing bars whenever a different configuration is desired in the seal of the finished toy.

Fig. 3 serves to illustrate further the idea of providing cutting blades and sealing bars of desired configuration. Here is shown a section of the cutting blade 14 and the sealing bar 19 employed when making an appropriate fan tail closure for the simulated toy duck shown in Figs. 1 and 2.

When it is desired to effect a closure in accordance with the present invention, the rubber toy with comparatively small appendage 23 is positioned on a stationary panel 24 immediately below cutting blade 14 and sealing bar 19 of the modified arbor press. Handle 7 is then depressed causing cutting blade 14 and sealing bar 19 to approach the surface of the rubber toy. The cutting blade 14 reaches the side walls of the toy first and immediately pinches them together to trap air in the toy before the sealing bar 19 comes into action. Further downward movement of handle 7 completes the shearing of the rubber walls by the cutting blade and then almost simultaneously sealing bar 19 comes into action and seals off the closure. Preferably, a softer spring tension is maintained in the cutting blade rod so that air may be trapped in the toy before the sealing bar comes into action.

Sealing is preferably effected through the use of a small amount of adhesive inserted between the side walls of the appendage of the toy immediately before the cutting and sealing operation. It is to be understood, of course, that other methods of adhesion may be employed. For instance, the rubber stock of which the toy is made could be unvulcanized and the closure could be effected through a heating coil in sealing bar 19. When the seal is effected, therefore, closure is made fast through in situ vulcanization of the rubber at

4

the point of closure. It might be mentioned here, furthermore, that the cutting blade might be heated through the use of a small heating unit, although this is generally not necessary.

Figs. 4 and 5 further illustrate the character and advantages of the closure sealing of this invention.

In Fig. 4 is depicted a toy rubber turtle at that stage of the process immediately preceding the cutting and sealing operation. A small appendage 25 is left on the form employed and then this turtle toy is submitted to the substantially simultaneous cutting and sealing operation of the invention.

Fig. 5 illustrates generally the process of the invention as it is applied to the tail 26 of a rubber toy simulating a fish.

While there has been described herein the preferred embodiments of the invention, it is to be understood that said invention is not limited thereto inasmuch as changes and modifications may be resorted to without departing from the spirit of the invention as defined in the appended claims.

What is claimed is:

1. A process for making dipped rubber toys simulating animals having fin-like anatomical extensions which comprises providing a form in the shape of the animal and having an extended supporting portion positioned at a point corresponding to a fin-like part of the anatomy of the animal-simulated toy, suspending the form from said supporting portion and dipping it into a bath of latex, whereby the toy is formed having an opening at said fin-like part of the anatomy, removing the form from the bath, removing the form from the toy through said opening and then trimming and sealing said opening to form an integral fin-like extension constituting the fin-like part of the anatomy.

2. A process for making dipped rubber toys simulating animals having fin-like anatomical extensions which comprises providing a form in the shape of the animal and having an extended supporting portion positioned at a point corresponding to a fin-like part of the anatomy of the animal-simulated toy, suspending the form from said supporting portion and dipping it into a bath of latex, whereby the toy is formed having an opening at said fin-like part of the anatomy, removing the form from the bath, removing the form from the toy through said opening, applying an adhesive to the inner walls of the opening and then substantially simultaneously shape-trimming and sealing said opening to form an integral fin-like extension constituting the fin-like part of the anatomy.

RUDOLF MAFKO.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,388,762	Riley	Aug. 23, 1921
1,644,122	Griffiths	Oct. 4, 1927
1,816,472	Dorogi	July 28, 1931
1,834,078	Stein	Dec. 1, 1931
2,053,371	Lee	Sept. 8, 1936
2,077,752	Frissell	Apr. 20, 1937
2,315,576	Auzin	Apr. 6, 1943