United States Patent

Nash et al.

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[54] TOY TOW TRUCK

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[52] U.S. Cl. 46/40, 46/201

[51] Int. Cl. A63h 33/30

[58] Field of Search 46/39, 40, 201, 202, 204, 206, 46/214, 215; 187/9

[56] References Cited

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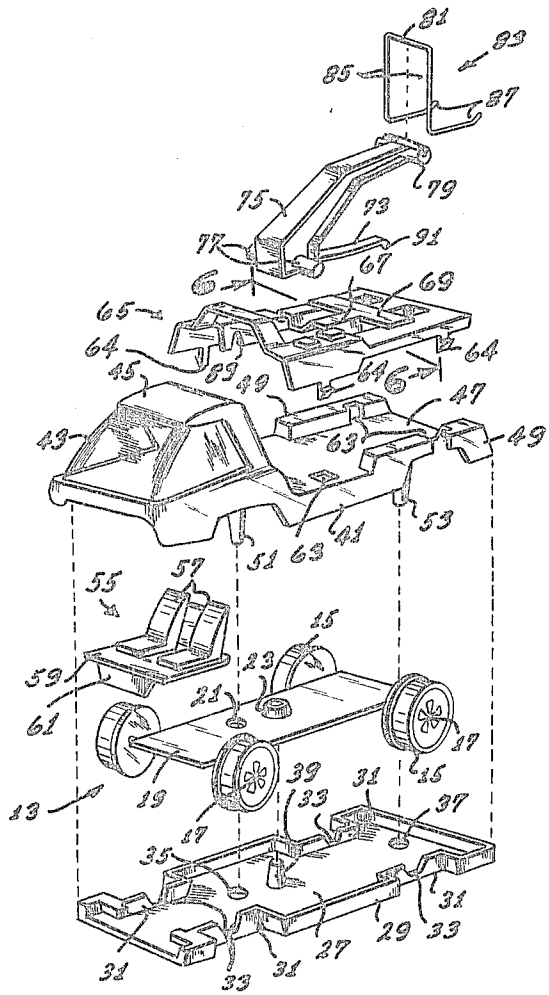
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[57] ABSTRACT

A wheeled toy truck body is shown having a spring operated boom mounted therein, the boom holding a toy vehicle engaging member such as a hook. The boom is forced downwardly to lower the hook and engage and hold a portion of a toy vehicle to be towed and upon being released, the boom returns to its unflexed position to thereby raise the hook and lift the toy vehicle. The hook may be a separate member or it may be an integral part of the boom.

8 Claims, 7 Drawing Figures



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SHEET 1 OF 2

Fig. 1

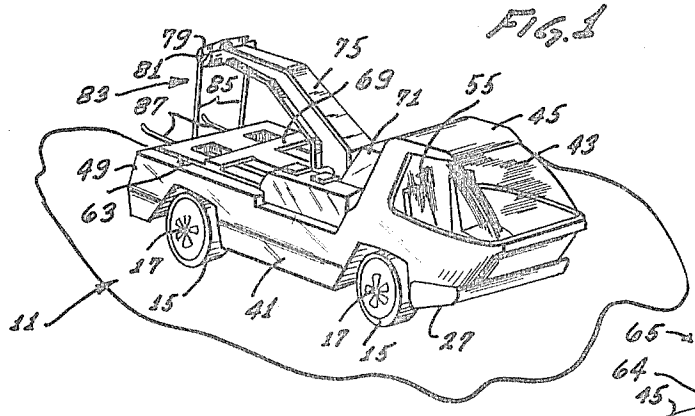
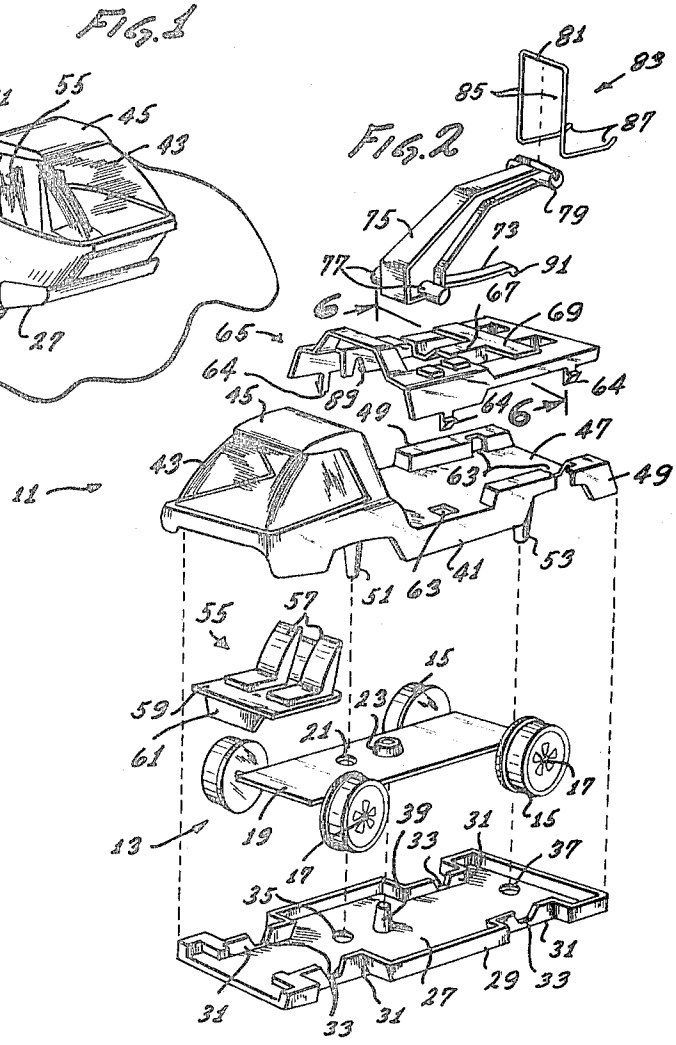


Fig. 2



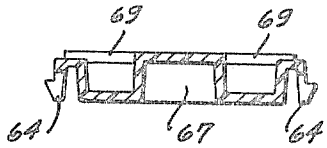
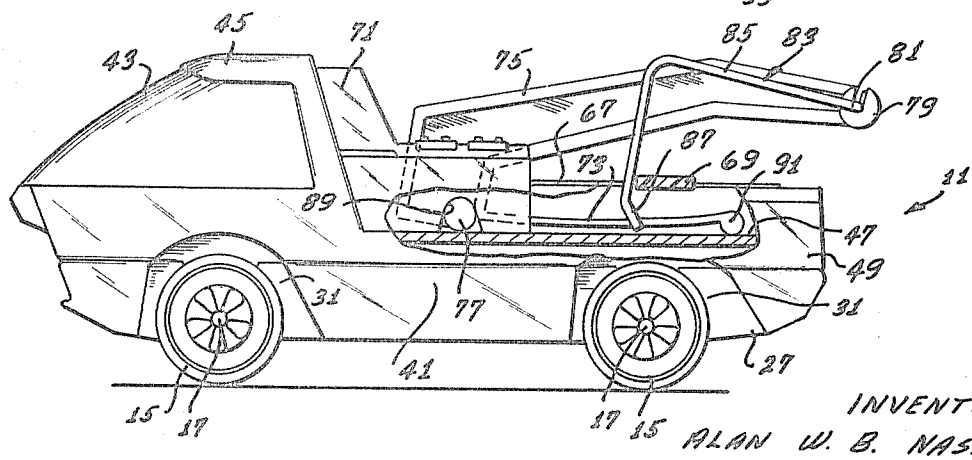


Fig. 6

Fig. 7



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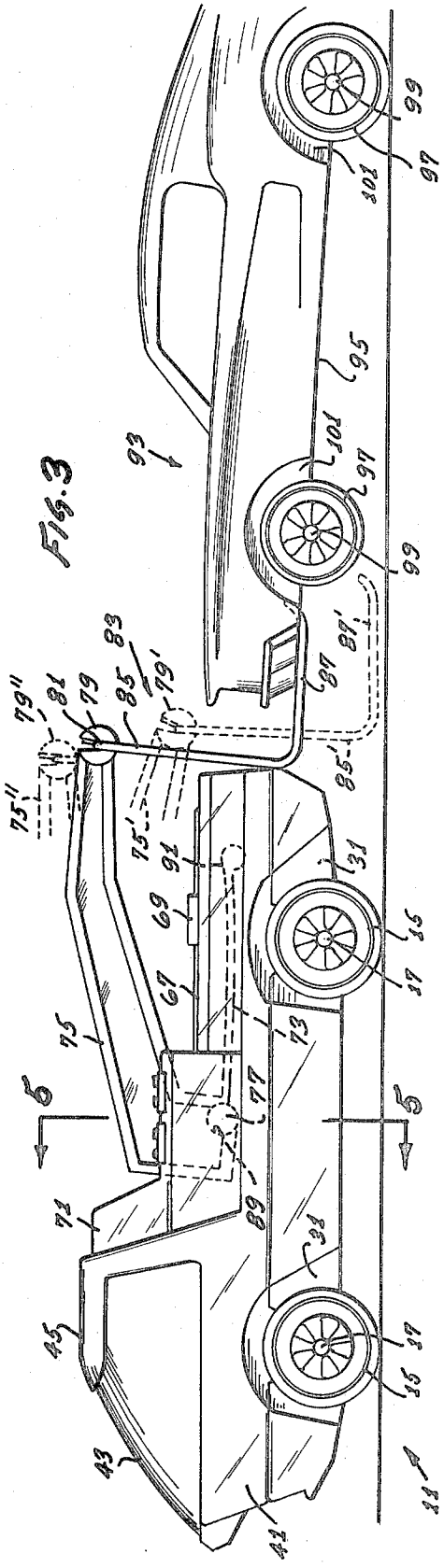


FIG. 3

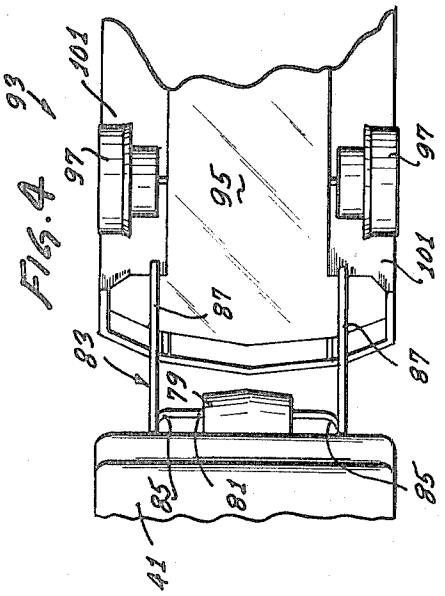


FIG. 4

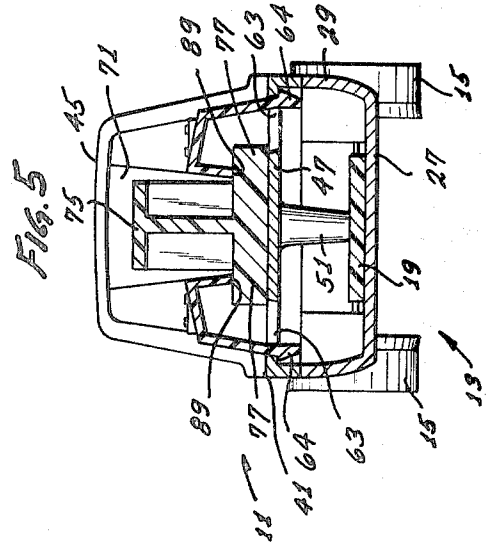


FIG. 5

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TOY TOW TRUCK

BACKGROUND OF THE INVENTION

The background of the invention will be set forth in two parts.

1. Field of the Invention

The present invention pertains generally to the field of toy vehicles and more particularly to a novel toy vehicle adapted to lift portions of other toy vehicles.

2. Description of the Prior Art

It is well known in the toy industry that toys which are realistic counterparts of actual devices, vehicles, objects, animals or human beings, hold much more attention for children and even adults than toys which are not. Accordingly, it is generally found that the more closely a doll can be made to resemble a human child, adolescent or adult, the more demand there will be for the doll. So it is with other fields of toy making. For example, toy automobiles and airplanes are manufactured to be scale replicas of actual vehicles.

There have, however, been found to be problems in manufacturing realistic scale toys, especially where the toys are very small. Such is the case with toy tow trucks which have in the past been provided with scale size winches to lift the toy vehicles to be towed. This technique has proved not only to be very difficult to accomplish and costly to fabricate but also very prone to malfunction and thus are unreliable.

A further disadvantage of providing a scale winch assembly is the single point contact provided by the string carried hook on the towed vehicle tends to allow this vehicle to sway, become unbalanced and eventually turn over. Because of the hook configuration and its suspension on a very flexible string, the vehicle to be towed must generally be lifted manually in order to position the hook for engagement. Unless the towed vehicle is specially provided with an aperture to accept the hook, there is a tendency for the hook to become disengaged.

SUMMARY OF THE INVENTION

In view of the foregoing factors and conditions characteristic of miniature toy tow truck vehicles, it is a primary object of the present invention to provide a new and improved toy tow truck construction that is not subject to the disadvantages enumerated above and thereby advances the art, and to provide a toy truck having a boom arrangement specifically designed to simply and effectively lift other toy vehicles.

Another object of the present invention is to provide an economical to construct toy tow truck that does not incorporate intricate and unreliable miniature winches.

Still another object of the invention is to provide a toy tow truck having no revolving parts used for lifting purposes and which easily engages and disengages from the towed vehicle without requiring special engaging provisions being provided.

Yet another object of this invention is to provide a toy tow truck which has an engagement assembly having two spaced points of contact with the vehicle to be towed so that a very stable towing condition is presented.

It is still another object of the present invention to provide a toy tow truck with provisions for depressing or lowering the boom as desired thereby reducing its silhouette and allowing it to travel under relatively low obstructions such as miniature bridges, garages and the like.

According to the present invention, a toy tow truck is provided for towing other toy vehicles which includes a toy truck body and toy vehicle engaging means for lifting a portion of the vehicle to be towed. Also, torsionally resilient boom means is mounted on the toy truck body and holding the engaging means for lowering the engaging means to a position whereat the toy vehicles to be towed may be engaged when a downward force is applied to the boom means and for raising the engaging means and thereby lifting a portion of the toy vehicle when the downward force is removed.

The engaging means may be a wire forklike member held by the boom means or it may be an integral part of the boom means. The boom means may include an integral lower portion underlying the upper engagement means holding portion, which lower portion being captured in appropriate holding portions of the truck body.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings in which like reference characters refer to like elements in the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective drawing of a presently preferred embodiment of the invention;

FIG. 2 is an exploded view showing various parts of the toy tow truck of FIG. 1;

FIG. 3 is a side elevational view of the toy shown in FIG. 1 illustrating various boom positions to engage and lift a toy vehicle to be towed;

FIG. 4 is a view of the underside of the towed vehicle's forward portion showing the two point contact by the depending engagement arrangement;

FIG. 5 is a cross-sectional view of the truck of FIG. 3, taken along line 5—5;

FIG. 6 is a cross-sectional view of the truck bed portion taken along line 6—6 in FIG. 2; and

FIG. 7 illustrates an engagement arrangement position whereby the boom is held in a lowered configuration.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring again to the drawings, and more particularly FIGS. 1 and 2, a toy tow truck constituting a presently preferred embodiment of the invention, generally designated 11, includes a suspension assembly 13 with four ground wheels 15 rotatably mounted on axles 17 which in turn are held in place by a suspension plate 19 having a forward aperture 21 and a central aperture 23. Positioned below the suspension assembly 13 is a lower body member or chassis 27 having a peripheral lip portion 29 with wheel well indentures 31 and axle clearance notches 33. The chassis 27 also includes a forward chassis aperture 35, an aft chassis aperture 37 and a centrally disposed upstanding post 39.

Mounted on the upper side of the suspension assembly 13 is an upper body unit 41 having a window 43 in a cab portion 45, a bed portion 47 with raised fenders 49, and depending forward and aft posts 51 and 53, respectively. Within the cab portion 45 is a simulated interior member 55 including a pair of seats 57 on a floor 59 and a downwardly extending tab 61.

Snapped into apertures 63 in the bed portion 47 of the body unit 41 are notched tabs 64 depending from a bed member 65. The bed member is shown in cross section in FIG. 6 as having a central channel 67 with an upper cross plate 69 and a forward, simulated tool, accessory compartment and gasoline tank portion 71.

Positioned in the channel 67 is an underlying spring acting arm 73 projecting from an integral part of a relatively stiff boom member 75 with forward positioned transverse holding posts 77 and a hook holding notched cross member 79 situated at the rearwardly extending end of the boom. A horizontal crossbar portion 81 of hook member 83 is adapted to lie in the notched cross member 79, the hook member also including a pair of extending bars 85 and transversely held hooked lifting arms 87.

The toy tow truck 11 is assembled as indicated in FIG. 2 with the depending post 51 passing through the apertures 21 and 35 and the rearward post 53 extending through the aperture 37 in the chassis 27. In the other direction, the post 39 upstanding from the chassis 27 extends through the central aperture 23 in the suspension plate 19. The ends of these posts are flattened by suitable heating or pressure or both in a manner similar to flattening the head of a rivet to hold these three

major truck portions together. Alternatively, the posts may be forced through appropriately dimensioned apertures having tapered lip side walls which capture the posts in a tight grip.

The underlying arm **73** of the boom **75** is passed into the channel **67** in the bed member **65** and the transverse holding posts **77** are held in notches **89** when the notched tabs **64** are snapped into the associated apertures **63** in the bed portion **47** of the body unit **41**. As can best be seen in FIGS. **3** and **7**, the underlying arm **73** includes an end raising portion **91** to allow the arm **73** to flex between its end and the captured transverse posts **77** when varying loads are placed on the boom **75**. As to the interior member **55** it is held in place in the cab **45** by means of the tab **61** being captured between the forward portion of the body unit and the chassis.

The operation of the toy **11** is clearly illustrated in FIG. **3** where a toy vehicle to be towed **93**, having an underside **95** with wheels **97** mounted on axles **99** in wheel wells **101**, is shown being held at two spaced areas of contact by the hooked lifting arms **87**. To initially engage or hook onto the vehicle **93** without manually raising it, the boom **75** is manually depressed from a position **75''** by a downward force until the depending hook member **83** is adjacent the vehicle rolling surface as indicated by the dashed boom crossmember outline **87'** and dashed hook member and lifting arm outlines **85'** and **87'**. In this configuration, the underlying arm **73** is caused to bow downwardly to act as a leaf spring with a potential return force stored therein.

As the manual pressure on the boom is released, the potential energy stored in the arm **73** provides a boom raising return force which is sufficient to cause the lifting of the front end portion of the vehicle **93** by the lifting arms **87**. Although the ends of the arms **87** are shown in FIG. **4** as hooked into the wheel wells **101**, the broadly spaced dual area contact of these arms provides good engagement and stable holding qualities even where wheel wells or other appropriately positioned indentures are not present in the underside of the vehicle to be towed.

With reference to FIG. **7**, a useful hook storage and lowered boom holding feature of the invention is shown. Here, the hook member **83** is rotated up and over the boom **75** until the spaced arms **87** are hooked over the upper cross plate **69**. Because of the relative positioning of the boom crossmember **79** and the plate **69**, and the particular lengths of the extending bars **85** and arms **87**, the boom is caused to be lowered and to thereby reduce the overall height of the truck for ease of traversing height obstructed structures.

The materials used in fabricating the invention are not critical and any generally suitable material such as plastics or metal and any conventional molding process suitable for the material used may be utilized.

This invention having been described in its presently preferred embodiment, it is clear that it is susceptible to numerous modifications and embodiments within the skill of the routine engineer and without the exercise of the inventive faculty. For example, an integral hook member may be substituted for the wire hook member **83**.

Accordingly, it is intended that the foregoing disclosure and drawings shall be considered only as illustrations of the principles of this invention and are not to be construed in a limiting sense.

What is claimed is:

1. A toy tow truck for towing other toy vehicles comprising:
a toy truck body;
toy vehicle engaging means for lifting a portion of other toy vehicles; and
torsionally resilient boom means mounted on said toy truck body and holding said engaging means for lowering said engaging means to a position whereat said toy vehicles may be engaged when a downward force is applied to said boom means and for raising said engaging means and thereby lifting a portion of said toy vehicles when said downward force is removed, said torsionally resilient boom means including a relatively stiff upper boom member and an underlying spring acting arm member connected at one end to protruding post elements and at the other end to a raised end portion, said truck body including a bed member having notches in sidewall thereof rotatably holding said protruding post elements, and including a body unit with a bed portion upon which said bed member is mounted and upon which said raised end portion rests, said upper boom member including a notched end portion in which said engaging means is movably held, said engaging means having an upper horizontal bar and L-shaped elements transversely extending from ends of said horizontal bar, said L-shaped elements including hooked engaging and vehicle holding arms.

2. A toy tow truck for towing other toy vehicles comprising:
a toy truck body;
toy vehicle engaging means for lifting a portion of other toy vehicles; and
torsionally resilient boom means mounted on said toy truck body and holding said engaging means for lowering said engaging means to a position whereat said toy vehicles may be engaged when a downward force is applied to said boom means and for raising said engaging means and thereby lifting a portion of said toy vehicles when said downward force is removed, said torsionally resilient boom means including a relatively stiff upper boom member and an underlying spring acting arm member connected at one end to protruding post elements and at the other end to a raised end portion, said truck body including a bed member having notches in sidewall thereof rotatably holding said protruding post elements, and including a body unit with a bed portion upon which said bed member is mounted and upon which said raised end portion rests, said upper boom member including a notched end portion in which said engaging means is movably held, said engaging means having an upper horizontal bar and L-shaped elements transversely extending from ends of said horizontal bar, said L-shaped elements including hooked engaging and vehicle holding arms, said bed member including a crossplate positioned to hold said hooked engaging and vehicle holding arms of said engaging means.

3. A toy tow truck for towing other toy vehicles comprising:
a toy truck body structure including a suspension assembly with axle held ground wheels, a molded chassis attached to the bottom of said suspension assembly and body unit with a cab portion and a bed portion attached to the upper side of said suspension assembly, said bed portion holding a molded bed member having a central channel portion and a pair of post holding recesses;
toy vehicle engaging means for lifting a portion of other vehicles, including a twin armed hook element with a horizontal central crossmember; and
a spring action boom assembly including an upper relatively stiff boom portion with a hook element crossmember holding portion at one end and an underlying spring arm member extending from the other end thereof, said boom assembly also including transversely extending pivoting posts adjacent said other end and disposed in said post holding recesses of said molded bed member.

4. A toy tow truck according to claim **6**, wherein said hook element includes spaced L-shaped arms with hooked ends, and wherein said underlying spring arm member includes a raised end portion to allow bowing of said spring arm member when said boom portion is depressed.

5. A toy tow truck comprising:
a toy vehicle body;
a set of wheels mounted to said body;
a generally flat longitudinally extending spring retained in a generally horizontal position by said toy vehicle body, said spring being flexible and having two ends and a center portion;
a boom portion connected to said spring; and

means connected to said boom for engaging other toy vehicles.

6. A toy tow truck as claimed in claim 5, including means connected to each end of said spring for spacing the center portion of said spring away from a portion of the vehicle body whereby said spring can flex in response to movement of said boom.

7. A toy tow truck as claimed in claim 6 wherein said boom and spring are integrally connected.

8. A toy tow truck as claimed in claim 7 wherein said vehicle body includes a first portion from which said spring center portion is spaced and a second portion for entrapping a portion of said integral spring and boom between said second portion and said first portion.

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