

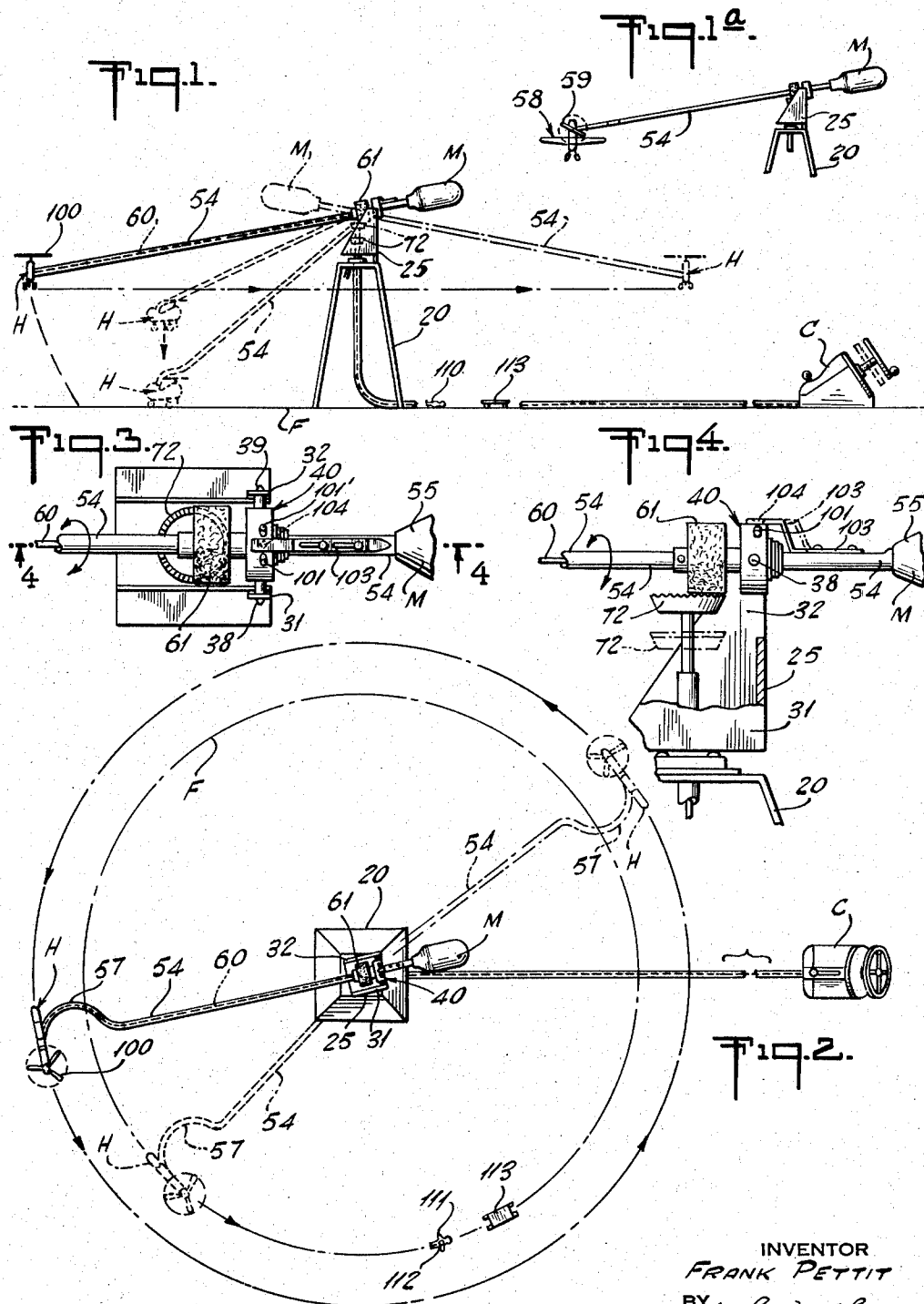
Aug. 25, 1959

F. PETTIT
AIRPLANE TOYS

2,901,251

Filed July 6, 1955

3 Sheets-Sheet 1



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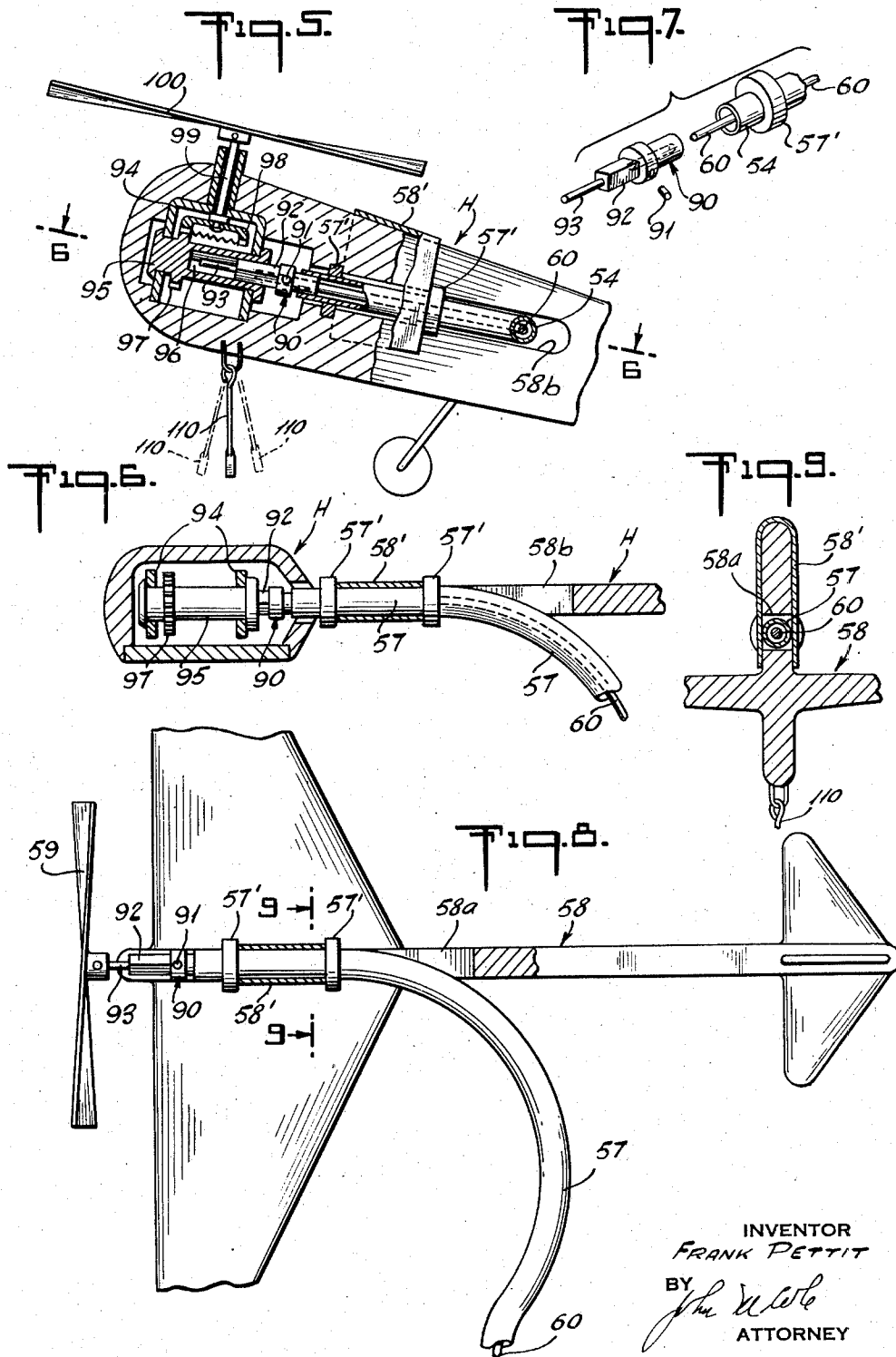
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Fig. 10.

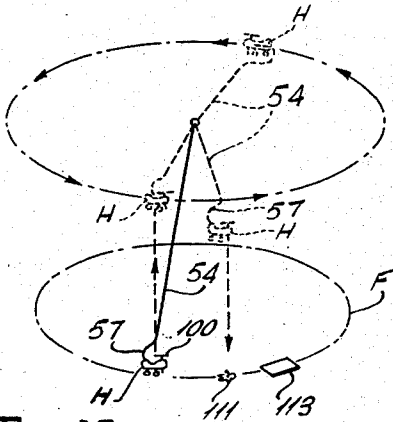


Fig. 11.

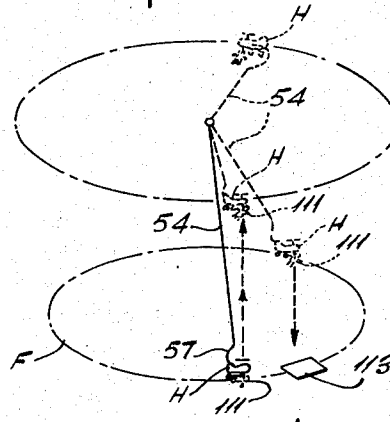


Fig. 12.

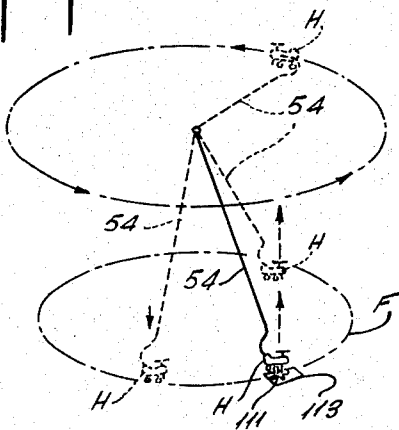


Fig. 13.

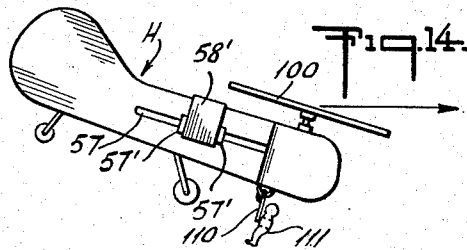
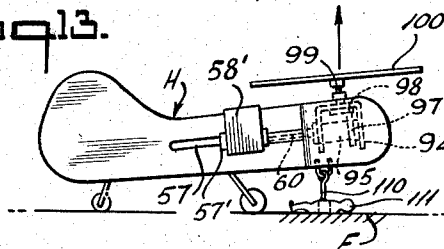


Fig. 16.

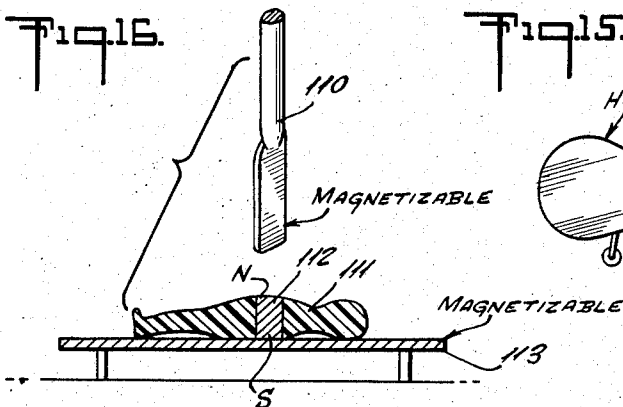
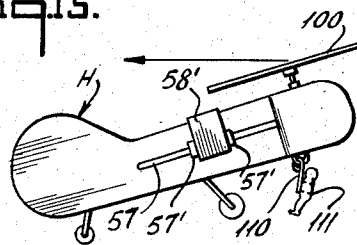


Fig. 15.



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AIRPLANE TOYS

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Application July 6, 1955, Serial No. 520,228

6 Claims. (Cl. 272—31)

The present invention relates to airplane toys and is more particularly directed toward tethered airplane toys each having a motor-driven, propeller-actuated unit revoluble about a vertical axis and capable of being maneuvered by external controls.

The present invention contemplates tethered toy airplanes designed so that one can equip the tethered toy with a toy helicopter which can be maneuvered to raise, lower, hover, fly forward, or fly backward, or with a conventional toy airplane which can be flown round and round, stunted, looped, or flown upside down.

Accordingly, the present invention contemplates constructions in which it is possible to detachably secure either a conventional toy airplane or a toy helicopter to the end of the revolving arm which circles the pylon. The invention also contemplates the provision of means whereby the maneuvering of the toy, when equipped with a toy helicopter, is limited in a manner similar to that of a helicopter in flight.

A further object of the present invention is to provide an airplane toy of the type described with means for effecting the lifting of a load from a toy landing field and transporting this load to a receiving device. Typically, the load may be a toy manikin and the receiver may be a litter. The load is provided with a magnet; the toy airplane with a magnetizable member adapted to pick up the load and the receiver, or litter is of larger mass and magnetizable so that it will attract and hold the load when the toy airplane is flown away.

The accompanying drawings show, for purposes of illustrating the present invention, one of the many embodiments in which the invention may take form, it being understood that the drawings are illustrative of the invention rather than limiting the same.

In these drawings:

Figure 1 is a side elevational view of the airplane toy showing the movable parts in various positions when using a toy helicopter;

Figure 1a is a fragmentary view of the toy when arranged for operating a conventional airplane;

Figure 2 is a top plan view of the helicopter equipped airplane toy of Figure 1;

Figure 3 is a fragmentary top plan view of the turntable and associated parts at an enlarged scale;

Figure 4 is a fragmentary elevational view with parts in section on the line 4—4 of Figure 3;

Figure 5 is an enlarged longitudinal, vertical sectional view through a toy helicopter showing a propeller drive;

Figure 6 is a horizontal sectional view on the line 6—6 of Figure 5;

Figure 7 is a perspective view of a coupling device;

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Figure 8 is a horizontal sectional view through a toy airplane of conventional type, showing a propeller drive;

Figure 9 is a transverse, vertical sectional view on line 9—9 of Figure 8;

Figures 10, 11 and 12 are diagrammatic views illustrating the maneuvering of the toy helicopter;

Figure 13 is an enlarged side elevational view of the helicopter and magnetic load showing the picking up of the load when the toy helicopter is hovering over it;

Figures 14 and 15 are side elevational views of the toy helicopter in flight, Figure 14 showing it moving forward and Figure 15 showing it moving backward; and

Figure 16 is a fragmentary view illustrating the deposit of the load on the magnetizable platform.

The airplane toy shown herein utilizes many of the parts shown in my Patent 2,699,334, granted January 11, 1955. The toy is in the form of a roundabout having a supporting tower or pylon 20 adapted to rest on a landing field F. At the top of the pylon or tower is a turntable 25 which may be the same as the turntable 25 of the above patent. The turntable is rotatably mounted on the pylon and is connected to a controller C similar to the controller in said patent, whereby the current for operating the motor may be controlled and the stunting operations of the toy may be effected. The turntable 25 has side brackets 31 and 32 provided with aligned holes or openings to receive the pivot members 38 and 39 of the assemblage 40 which revolves with the turntable about the vertical axis thereof. This assemblage is not shown in detail but may be made as indicated in the aforesaid patent.

The assemblage 40 is arranged to carry a tube 54, one end of which is secured to the housing or stator 55 of a motor M. The other end of the tube 54 is bent through 90° as indicated at 57, and is provided with spaced collars 57', 57'. It is passed laterally into a slot 58a in the body of a conventional airplane 58 (Fig. 9) or into a slot 58b in the body of a helicopter H (Fig. 5), and secured in place by a clip 58'. As here shown, the tube 54 carries a resilient cylinder 61 adapted to be engaged by a vertically reciprocable and manually rotatable annular member 72 to effect angular movement of the cylinder 61, the motor stator and the airplane about the axis of the tube 54 as shown in said patent.

The rotor of the motor M is connected to a flexible shaft 60 which traverses the tube 54 and is secured to a coupling 90 by screw 91 (Fig. 7). This coupling has a squared portion 92 and a rod-like end 93, for connection with the propeller 59, of the conventional airplane.

The helicopter body H (Fig. 5) carries a yoke 94 in which is mounted a shaft 95 having a squared opening 96 to accept the squared portion 92 of the coupling 90 so as to be driven thereby. The shaft 95 has a gear 97 in mesh with a gear 98 which drives an upwardly extending shaft 99 and propeller 100.

The operation of flying the helicopter type of toy instead of the more conventional type of airplane may be substantially the same as that for flying the airplane as discussed in the above patent, except that considerable skill is required to avoid turning the helicopter too far in either direction from the hovering position. In order to prevent turning the tube 54 and parts carried thereby through too great an angle, the assemblage 40 is provided with two spaced pins 101, 101' and the tube 54 carries a slider 103 adapted to be shifted between the

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full line and dotted line positions indicated in Figure 4. When it is in the dotted line position, the slider 103 will not engage the pins 101, 101' and the toy may be manipulated to execute complete loops, as described in the above patent. When, however, the slider 103 is pushed to the full line position of Figures 3 and 4, it enters between the pins 101, 101' limits the angular movement of the tube 54, and of the airplane. This arrangement is particularly desirable for the purpose of limiting the maneuvering of the toy helicopter between angles such that the helicopter moves forward and angles such that it moves backward.

In order to facilitate maintaining the adjustment such that the toy helicopter will hover, the assemblage 40 and the slider 103 are provided with cooperative means such as a bump on one part and a dent, indicated by the dotted circle 104, in the other part so located that the helicopter is held at the angle to hover, raise, lower or land depending on motor speed.

In order that the toy may be utilized to simulate transportation or operations, the body of the airplane, whether helicopter or the more conventional type of airplane, is provided with a magnetizable, pendant member 110, hinged to be freely attractable out of the hanging position. A load, such as a toy figure or manikin 111, is placed on the field F in such a position that when the toy airplane is lowered close to the field, it can be maneuvered to bring the freely hanging magnetizable member 110 close enough to the figure 111 to be within the field of the magnet 112 (Fig. 16) carried by this figure. The magnet will swing the magnetizable member 110 and if the toy airplane is low enough the member 110 becomes magnetically coupled with the manikin. When the airplane is now flown, the load is carried by the plane, whether helicopter or conventional plane.

At another suitable location on the field F, where the plane can lower onto it is placed a litter or stretcher 113 made of magnetizable material, and, inasmuch as this litter or stretcher has greater attraction for the magnet 112 than the small member 110, the magnetic figure 111 is attracted to the litter and held by it so securely that when the helicopter or airplane flies away, it leaves the toy figure behind, thereby having executed a rescue operation.

Figures 10, 11 and 12 illustrate some of the maneuvers through which the toy helicopter may be passed.

In Figure 1 the helicopter is shown in full lines in a random landed position on the field.

If the adjustment is for hovering, the plane may be raised vertically, as shown in Figure 10, then tilted forward and caused to circle about the center of the pylon and maneuvered to a position where it can then be caused to hover and the speed reduced to lower it on to the magnetic load, such as a figure or manikin, a mail bag, or other such object. Having taken hold of the magnetic load as shown in Figure 11, propeller speed may be increased and the airplane raised, caused to circle the pylon and then brought to a position where it can be lowered to deposit the load on to the litter. This is shown in Figure 13.

Figure 14 illustrates the operation of flying away after completing the rescue operation and again landing on the field.

Since it is obvious that the invention may be embodied in other forms and constructions within the scope of the claims, I wish it to be understood that the particular forms shown are but a few of the forms and, various modifications and changes being possible, I do not otherwise limit myself in any way with respect thereto.

What is claimed is:

1. An aerial toy comprising a toy landing field, a pylon, an arm, a toy helicopter having an arm receiving opening therein and detachably secured to the arm at an end thereof by clip means slidably engaging the helicopter body to hold the arm within the opening, said helicopter

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having a motor driven propeller with a normally vertical axis, mounting means securing the arm to the pylon for rotation about a vertical axis and for limited movement about a horizontal axis, whereby the helicopter may circle about the pylon and raise and lower, said arm mounting means further including means whereby the helicopter body may be tilted to vary the angle of axis of rotation of the propeller each side of the vertical to cause the helicopter to hover, or fly forward or backward, said helicopter having a pendant magnetizable member, and a load on the landing field in a position to have the toy helicopter lowered close to it, the load including a magnet to attract the magnetizable member whereby the load may be lifted by the toy helicopter and carried away by it.

2. The toy of claim 1, having a magnetizable load receiver on the field in a position to have the helicopter deposit the load thereon.

3. A toy for simulating aerial transportation comprising a load to be transported and including a piece of magnetized material, a relatively large magnetizable receiver, a propeller driven, toy aerial vehicle having a relatively small pick up member of magnetic material, motor means to drive the propeller at variable speeds, remote control means for controlling propeller speed and for maneuvering the toy vehicle when in flight to place it in position to have the pick up and load magnetically couple, for causing the vehicle to fly away with the load, and for causing the vehicle to place the load on the receiver.

4. An aerial toy comprising a landing field, a pylon, an arm, mounting means for securing the arm to the pylon for rotation about a vertical axis and for limited movement about a horizontal axis, a toy airplane secured to the free end of the arm and adapted when at rest to be supported by the landing field, the airplane having a motor driven propeller for driving the same about the pylon, means for varying the angle of attack of the airplane propeller whereby the airplane may also raise and lower, a pendant of magnetic material carried by the airplane, a load capable of being transported by the toy airplane and adapted to be placed in the field closely adjacent the path of the pendant when the airplane circles the field, the load having a magnet to which the pendant adheres, and a load receiving station of magnetic material and of greater mass than said pendant adapted to be placed on the field at another point along said path and having greater attraction for the load when placed thereon than the pendant member so that the airplane may be moved away from said station and leave the load behind.

5. An aerial toy comprising a pylon, an arm, a toy aircraft having an arm receiving opening therein, a pair of spaced collars adjoining one end of said arm, said opening receiving said one end of the arm, a clip slidably engaging the aircraft body in one position for holding the arm in place in said opening to restrict longitudinal movement of said one end of the arm relative to the aircraft and movable to another position for removing the aircraft from the arm, said clip when in said one position engaging said arm and adjoining body portions of the aircraft to at least partially close said opening between the collars and extending between the collars with the edges of the clip in slidable engagement with the collars, a motor driven propeller on said aircraft, a pair of trunnions carried by said arm, trunnion receiving means carried by the pylon, said trunnions securing the arm to the pylon for rotation about a vertical axis and for limited movement about a horizontal axis whereby the aircraft may circle about the pylon and raise and lower, said arm mounting means further including means for tilting the aircraft body to vary the pitch of the aircraft and its direction of flight.

6. An aerial toy having a tubular arm provided with

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at least two spaced collars near one end thereof, a flexible shaft in said arm, a coupling member secured to said shaft and extending beyond the end of the arm, a toy aircraft having an arm receiving opening with said one end of the arm disposed in said opening, a clip slidably engaging said aircraft body in one position to hold the arm in said opening and movable to another position for removing the aircraft from the arm, said clip when in said one position engaging said arm and adjoining body portions of the aircraft to at least partially close said opening between the collars and extending between the collars with the side edges of the clip in slidable engagement with the collars to secure

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said aircraft to said arm and restrict axial movement of said arm relative to the aircraft body.

References Cited in the file of this patent

UNITED STATES PATENTS

2,067,258	Christiansen	Jan. 12, 1937
2,067,828	Christiansen	Jan. 12, 1937
2,451,006	West	Oct. 12, 1948
2,472,556	West	June 7, 1949
2,623,774	Hubbard	Dec. 30, 1952
2,699,334	Pettit	Jan. 11, 1955