P. A. MARSHALL.

MECHANICAL TOY.

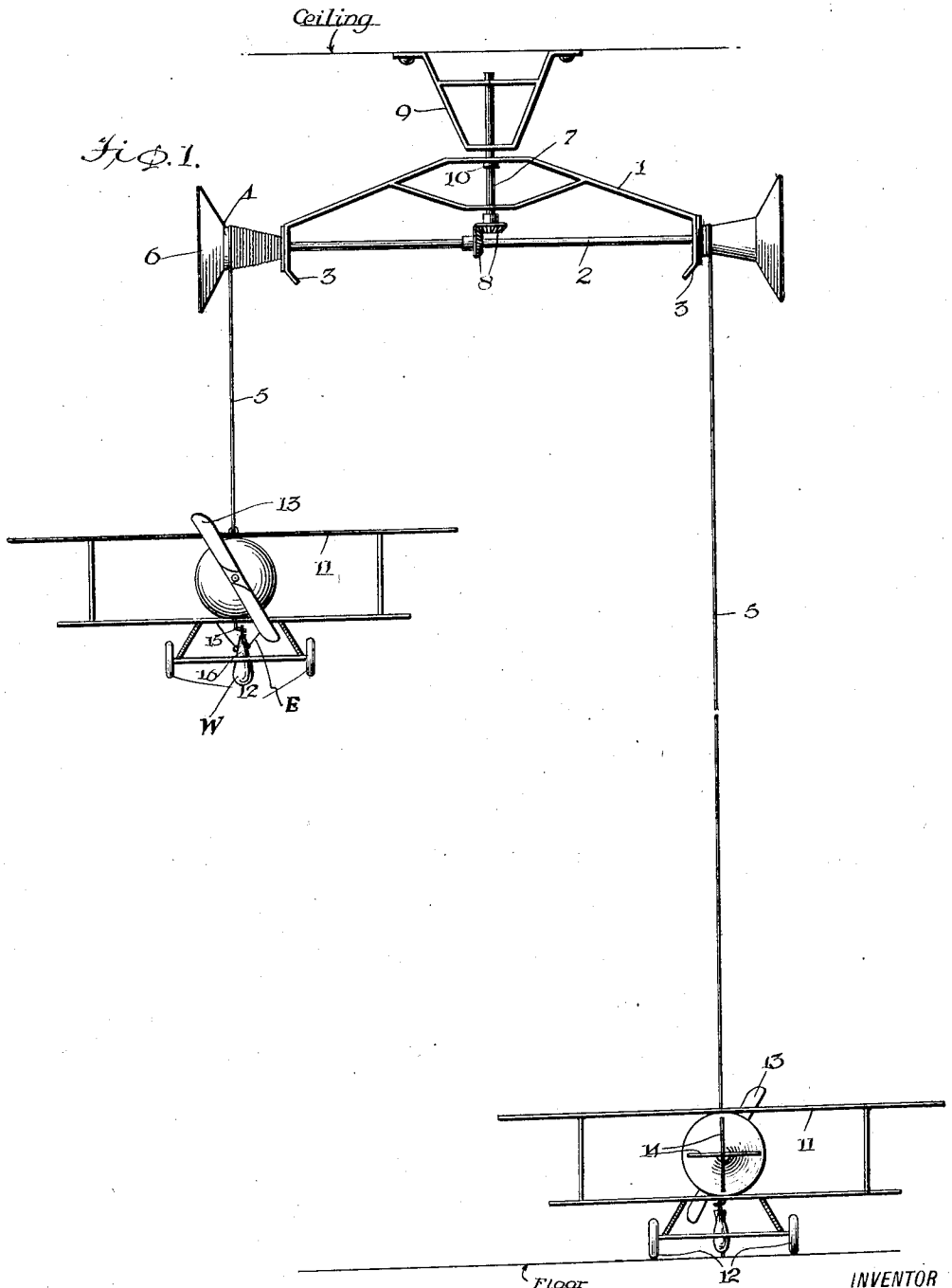
APPLICATION FILED DEC. 18, 1920.

1,385,634.

Patented July 26, 1921.

3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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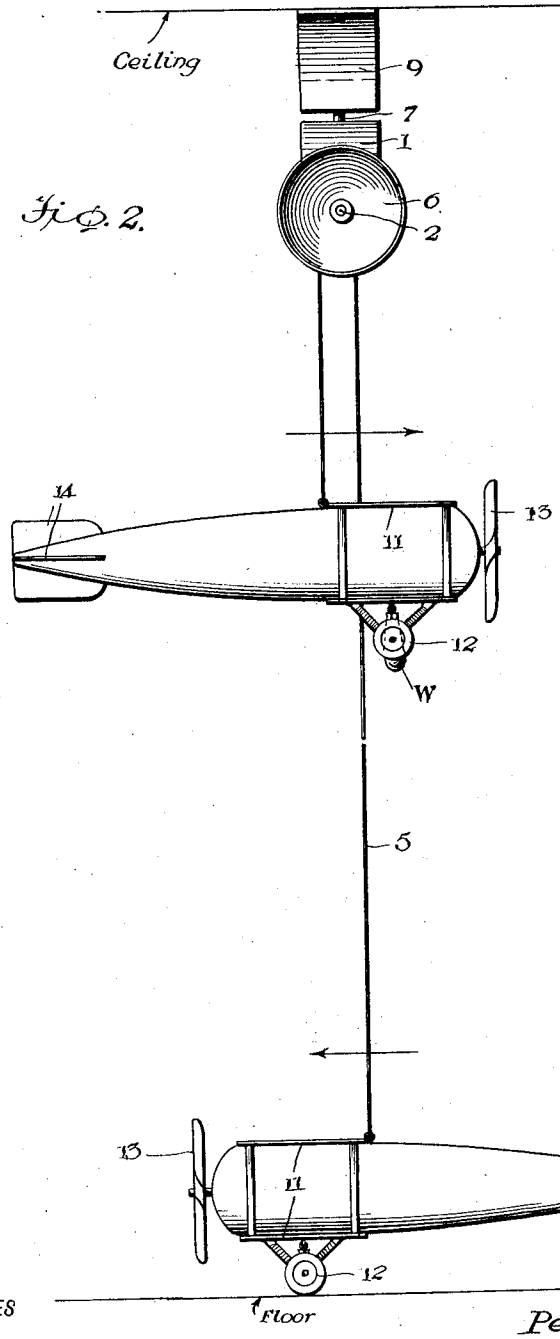
3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

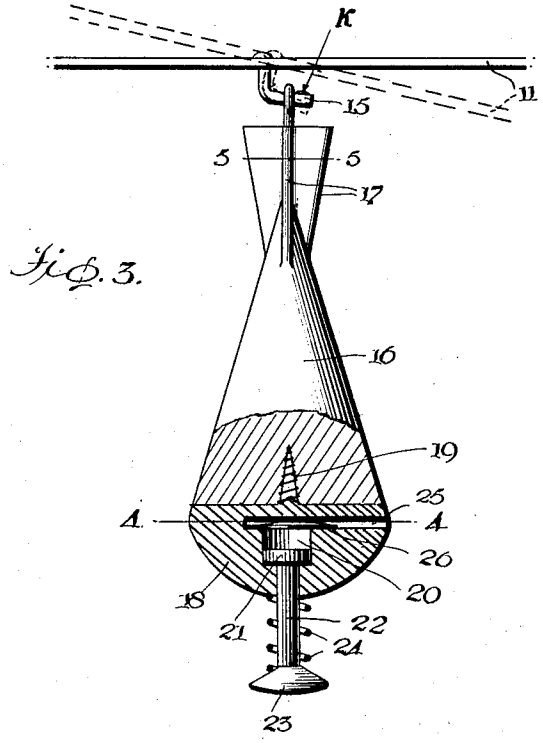

Fig. 3.

Fig. 4.

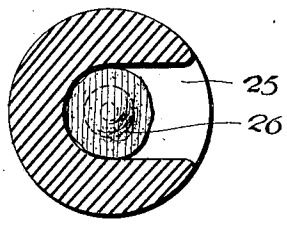

Fig. 5.

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UNITED STATES PATENT OFFICE.

PERCY ANDRESS MARSHALL, OF LOS ANGELES, CALIFORNIA.

MECHANICAL TOY.

1,385,634. Specification of Letters Patent. Patented July 26, 1921.

Application filed December 18, 1920. Serial No. 431,768.

To all whom it may concern:

Be it known that I, PERCY A. MARSHALL, a citizen of the United States, and a resident of Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Mechanical Toys, of which the following is a specification.

My invention is an improvement in toys, and has for its object to provide a toy of the character specified, wherein there is provided a rotatable support carrying a series of representations of airplanes, so connected with the support that they may move upwardly and downwardly with respect thereto, the downward movement of the one controlling the upward movement of the other, and the downward movement of the one also controlling the rotation of the support, and wherein the downward movement of the planes is brought about by a weight.

In the drawings:—

Figure 1 is a front view of the improved toy.

Fig. 2 is a similar view at right angles to Fig. 1.

Fig. 3 is a front view of the bomb with a part in section.

Figs. 4 and 5 are sections on the lines 4—4 and 5—5, respectively of Fig. 3.

In the present embodiment of the invention, a support is provided of truss formation, and of light material, either wood or metal, the said support being indicated at 1, and there is journaled in this support a shaft 2. Referring to Fig. 1, it will be seen that the truss support has at its ends depending bearing portions 3, and that the shaft is journaled in these bearing portions.

Secured to each end of the shaft is a reel 4, and upon each reel winds a flexible member 5. The reels are tapering, and are arranged with their small ends inward, and the flexible member is secured to the small end of the reel, and winds toward the large end. Each reel has a flange 6 at its outer end, the said flanges being frusto-conical as shown, and arranged with their small ends inward.

The support 1 is also provided with a vertical shaft 7 which is journaled in the truss, at right angles to the shaft 2, and the shafts 2 and 7 are geared together by bevel gears 8.

The shaft 7 is journaled in the support 1, so that the support will rotate freely thereon, and it is held in a bracket 9, and the said bracket is arranged to be connected with an overhead support, as for instance a ceiling. The shaft 7 is rigid in the support 9, and a collar 10 is provided on the shaft for limiting the downward movement of the support 1 with respect to the shaft.

The representation 11 of an airplane is connected with each flexible member 5. These representations may be designed to represent any preferred form of airplane, being that of a bi-plane in the present instance, and each representation is provided with coasting wheels 12 and a propeller 13, the said propellers being free to rotate with respect to the fuselage of the plane.

The planes also have vertical and horizontal rudders indicated at 14. Since the shaft 7 is fixed, it will be obvious that when the shaft 2 is rotated on its axis it will also be revolved about the shaft 7 as a center. The flexible members 5 wind upon the reels 4 in opposite directions, so that when one flexible member unwinds the other will be wound up, and the flexible members may be of any desired length.

The airplanes are constrained to move downward by means of a weight W, that airplane which is uppermost being connected with the weight to cause it to move downward, and the weight is heavy enough to overbalance the airplane and to cause the first named plane to move downward to wind up the flexible member of the other plane.

This weight is connected to that plane which is uppermost, and each plane has a hook 15 on the underside of the fuselage to which the weight may be connected. Flexible retaining elements E carried by the plane are also connected to weight for holding the same in position.

In operation, with the parts in the position of Fig. 1, and with the weight on that airplane which is highest, the said plane will be caused to move downward, unwinding one flexible member and rotating the shaft 2 in a direction to cause the other flexible member to wind up. The rotating movement of the shaft 2 will cause the shaft and the support 1 to revolve about the shaft 7.

In Figs. 3, 4 and 5, there is shown a preferred form of bomb adapted for connection with the hook of the lower plane. This

bomb indicated at 16 tapers toward both ends, one end being a much sharper taper than the other, and the said end is provided with guiding vanes 17, the said vanes being planes which are perpendicular to each other. The large end of the bomb, that is, the head indicated at 18 is detachable, being held to the body by a screw 19, and this head has a cavity 20 in which is movable a plunger 21 on the inner end of a rod 22. The rod has a head 23 at its outer end, and the rod is normally pressed outward by a spring 24.

The head has a laterally extending slot or passage 25 through which a detonating cap 26 may be pushed into position to be engaged by the plunger, when it is driven in by the head 23 striking the floor. Because of the revolving movement of the airplanes about the axis of the shaft 7 they will tend to swing upward, through centrifugal force, and they will tend to take an inclined position as indicated in dotted lines in Fig. 3.

This will cause the bill of the hook 15 to slant to a greater degree and eventually the bomb will be dislodged, and the striking of the head against the floor will cause the cap to be detonated.

In preparing the improved toy for use the bomb designated by the numeral 16 is connected to the hook 15 of the lower plane and the weight designated by the letter W is attached to the upper plane through the medium of a hook 15 and the flexible elements E. Any suitable means may be employed for connecting the weights to the upper plane. The connection of the weight W with the upper plane of course overbalances the upper plane with the result that the same will move downwardly. The downward movement of the upper plane results in the rotation of the shaft 2 so that the planes 11 are revolved about the axis of the shaft 7. As the velocity of the planes increases, the same will move outwardly through centrifugal force. The outward movement of the ascending plane of course tilts the same with the result that the bomb 16 carried thereby is permitted to slide off the hook. The point at which the explosive device 16 slides off the hook may be regulated by inclining the hook to the desired degree. As illustrated in Fig. 3, each hook 15 is provided with a small knob K which prevents the explosive device from sliding off the hooks prematurely.

When the explosive device 16 is disconnected from the plane by reason of the inclination of the plane, the same will travel downwardly and the head 23 of the plunger will contact with the ground so that the detonating cap 26 will be engaged by the forward end 21 of the plunger 22.

By means of the flexible elements E the weight W which is attached only to the uppermost plane is prevented from slipping off the hook 15 when the planes are inclined transversely due to centrifugal force.

The explosive device 16 is, however, attached only to the lower plane and is moved upwardly in a circular or spiral path with the lower plane. When the ascending plane is inclined transversely due to centrifugal force the hook 15 is inclined so that the explosive member may slip off and fall to the floor. When the explosive member or bomb 16 strikes the floor, the member 26 carried thereby is exploded by the concussion of a plunger 23.

I claim:—

1. A toy comprising a support, a shaft journaled longitudinally of the support, a reel secured to each end of the shaft, flexible members winding on the reels in opposite directions, a representation of an airplane supported by each flexible member, means for mounting the support to rotate about a vertical axis, and means controlled by the turning of the shaft for revolving the support about said axis, each of the said representations having a hook, a weight for connection with the hook, said hooks being inclined to release the weight when the representations assume a predetermined position of inclination from centrifugal action, and a bomb carried by the hook of one of said airplanes.

2. A toy comprising a support, a shaft journaled longitudinally of the support, a reel secured to each end of the shaft, flexible members winding on the reels in opposite directions, a representation of an airplane supported by each flexible member, means for mounting the support to rotate about a vertical axis, and means controlled by the turning of the shaft for revolving the support about said axis, each of the said representations having a hook, and a weight for connection with the hook, said hooks being inclined to release the weight when the representations assume a predetermined position of inclination from centrifugal action.

3. A toy comprising a support, a shaft journaled longitudinally of the support, a reel secured to each end of the shaft, flexible members winding on the reels in opposite directions, a representation of an airplane supported by each flexible member, means for mounting the support to rotate about a vertical axis, and means controlled by the turning of the shaft for revolving the support about said axis, each of the said representations having a hook, and a weight for connection with the hook.

4. A toy comprising a support, a shaft journaled longitudinally of the support, a reel secured to each end of the shaft, flexible members winding on the reels in opposite directions, a representation of an air-

plane supported by each flexible member, means for mounting the support to rotate about a vertical axis, and means controlled by the turning of the shaft for revolving the support about said axis.

5. In combination, a shaft, means for connecting the shaft to an overhead object in a substantially vertical position, a support mounted to revolve on the shaft, a second shaft journaled longitudinally of the support at right angles to the first named shaft, and carrying reels at its ends, flexible members winding on the reels in opposite directions, representations of flying machines connected with the flexible member, and means controlled by the turning of the last named shaft for revolving the support on the first named shaft, said representations being adapted to be moved downwardly by a weight.

6. In combination, a shaft, means for connecting the shaft to an overhead object in a substantially vertical position, a support mounted to revolve on the shaft, a second shaft journaled longitudinally of the support at right angles to the first named shaft, and carrying reels at its ends, flexible members winding on the reels in opposite directions, representations of flying machines connected with the flexible member, and means controlled by the turning of the last named shaft for revolving the support on the first named shaft, a weight for connection with one of said representations to draw them downward, and an explosive element carried by the other flying machines.

7. In combination, a shaft, means for connecting the shaft to an overhead object in a substantially vertical position, a support mounted to revolve on the shaft, a second shaft, journaled longitudinally of the support at right angles to the first named shaft, and carrying reels at its ends, flexible members winding on the reels in opposite directions, representations of flying machines connected with the flexible member, and means controlled by the turning of the last named shaft for revolving the support on the first named shaft, a bomb for connection with one of said representations, and means on each representation for supporting the bomb and adapted to release the same when the representations swing outward beyond a predetermined point.

PERCY ANDRESS MARSHALL.